MICRON HOME MPC

PCI-Bus System User's Manual

P/N MAS001280-00
04/96

Micron Electronics, Inc.

Safety Information

The following instructions pertain to the risk of fire, electric shock, or bodily injury. Please read all of these instructions carefully.

1. Save these instructions for later use.
2. Follow all of the instructions and warnings marked on this product or included in this manual.
3. Do not use this product on an unstable cart, stand or table. The product may fall, causing serious damage to the product.
4. Slots and openings in the cabinet and the back are provided for ventilation. To ensure the reliable operation of your product, and to protect it from overheating, these openings must not be blocked or covered. Do not use this product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register. This product should not be placed in a built-in installation unless proper ventilation is provided.
5. Never push objects of any kind into the product through the cabinet openings, as they may touch dangerous voltage points or short out parts that could results in fire or electric chock. Never spill liquid of any kind on the product.
6. This product should only be connected to the AC power source indicated on your product system's information label. If you are not sure of the type of AC power available, consult your dealer or local power company. Only connect this product to a power outlet that matches the power requirements of this product.
7. Do not allow anything to rest on the power cord. Do not locate this product where people may walk on the cord.
8. If you have to use an extension cord with this product, make sure that the total amperage rating of all equipment plugged into it does not exceed the amperage rating of the extension cord. Also, make sure that the total of all products plugged into the main AC power outlet does not exceed 15 amps.
9. Unplug your product from the main electrical power outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
10. Do not use this product near water.

11. Unplug this product from the main power outlet and call for service under any of the following conditions:

    A. If the power cord or plug is damaged or frayed.

    B. If liquid has been spilled into the product.

    C. If the product has been exposed to rain or water.

    D. If the product has been dropped or the cabinet has been damaged.

    E. If the product exhibits a distinct change in performance, indicating a need for service.

Power Supply Warning

Do not open the power supply cover as hazardous voltages may be present. There are no serviceable components inside.

Battery Warning

Caution

There is danger of explosion if the battery is replaced incorrectly. Replace only with the same or equipment type recommended by the manufacture. Discard used batteries according to the manufacturer's instructions.

Attention

Il y a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie de meme type ou d'un type recommande par le constucteur. Mettre au rebutled batteries' usagees conformement aux instructions du fablicant.

Vorsicht

Explosionsgefahr bei unsachgemaB em Austausch der Batterie. Ersatz nur durch denselben oder einen vom Hersteller empfohlenen ahnlichen Typ. Entsorgung gebraushter Batterien nach Angaben des Herstellers.

FCC Information

Class B Digital Device: This device complies with Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult an experienced radio/TV technician for help.

Note: Shielded interface cables must be used in order to comply with the emission limits.

Caution: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authorization to operate the equipment.

DECLARATION OF CONFORMITY

APPLICATION OF COUNCIL DIRECTIVE(S) 89/336/EEC and 72/23/EEC
Standard(s) to which Conformity is Declared:

EN55022
EN50082-1
EN60950

Manufacturer's Name:	Micron Electronics, Inc.
Manufacturer's Address:	900 E. Karcher Road Nampa, Idaho 83687 USA

Micron Electronics, Inc., hereby declares Micron systems bearing the marking are in compliance with the EMC (Electromagnetic Compatibility) directive of the European Community and conform to the Directive(s) and Standard(s) listed above.

A "Declaration of Conformity" for each system can be found on file at any authorized European Micron Dealer/Distributor. For a list of authorized dealers/distributors, please contact Micron Electronics, Inc. at 208-893-8970. When requesting a "Declaration of Conformity," please refer to the FCC ID number on the system label.

EPA Energy Star Program

The need to conserve our world's natural resources is imperative. At the same time, it is estimated computer systems will account for 10 percent of the U.S. commercial energy consumption by the year 2000.

To combat the problem of energy waste, the Environmental Protection Agency (EPA) developed the Energy Star Program. This cooperative effort between government and private industry is designed to decrease power consumed by computing equipment. Program guidelines require both the computer system and monitor draw fewer than 30 watts of power each while in the "sleep" mode.

Micron Electronics, Inc. is proud to be an official member of the Energy Star Program. This voluntary partnership with the EPA means many Micron computer systems are Energy Star compliant. You will see the savings achieved through Energy Star compliant equipment is in the form of lower power bills—without sacrificing performance or paying more for your system.

We join the EPA in their commitment to conserve the world's natural resources. Although certain configurations and system options may prevent your system from meeting Energy Star guidelines, your system still has built-in energy saving features. Check with your Micron sales representative to see if your configuration meets the Energy Star guidelines. Please refer to Chapter 3 in this manual for more information on modifying your CMOS Power Management settings or default times.

Operating System Compatibility

The power-saving features of this computer have been tested and found to be fully functional with the following operating systems:

MS DOS 6.22
MS Windows 3.11
MS Windows 95
MS Windows NT

Micron Electronics, Inc. does not guarantee functionality of the power-saving features in operating systems other than those listed above.

Network Compatibility

The power-saving functions may vary among different network operating systems. If the system is to be permanently connected to a network, we recommend the computer's "wake up" function be tested before relying on this mode.

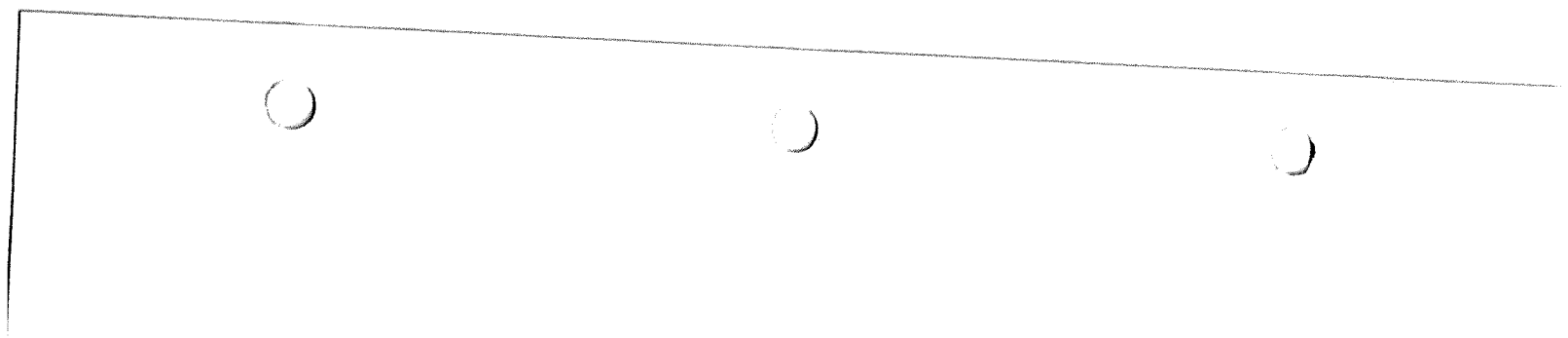


Table of Contents

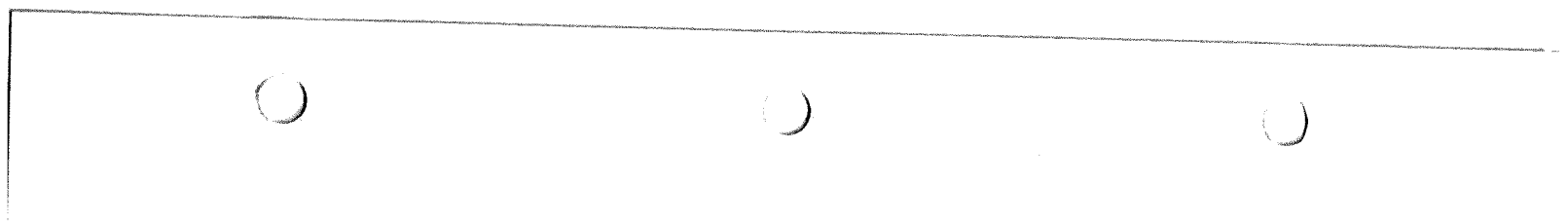
Chapter 1
Setting Up Your System
Unpacking 1-2
Setup 1-3
Maintenance 1-12
Removing the System Cover 1-14

Chapter 2
Technical Information
Overview 2-2
HOME MPC System Board 2-4
Jumper Settings 2-5
SIMM Modules 2-10

Chapter 3
The BIOS Setup Program
Setup 3-2
How to Run the Setup Program 3-3
Exit/Saving the CMOS Selections 3-21

Chapter 4
Common Problems
Introduction 4-2

Appendix A: Contacting Technical Support
Appendix B: Beep Codes and Error Messages
Appendix C: Glossary
Appendix D: Micron Power[SM] Warranty



Chapter 1

Setting Up Your System

Unpacking **1-2**
Check the Packaging 1-2
Unpack Your System 1-2
Check Your Packing List 1-2
Setup **1-3**
Getting Started 1-3
What You Need 1-3
Putting It All Together 1-3
Desktop Case 1-5
Mini Tower Case 1-7
Tower Case 1-9
Running Your System for the First Time 1-11
Turning Off Your System 1-11
Maintenance **1-12**
Operating Environment 1-12
Transporting 1-12
Cleaning 1-12
Protecting 1-13
Backing Up 1-13
Removing the System Cover **1-14**
Desktop Case 1-14
Mini Tower Case 1-16
Tower Case 1-18

Unpacking

Check the Packaging

As soon as the packages containing your new system arrive, carefully inspect them for any signs of damage. In particular, look for wrinkled or bent corners, holes, or other signs of bad handling or abuse. If you notice any damage to the packaging, immediately open the boxes and inspect the contents for damage. Pay close attention to the components near the area where the packing material was damaged.

Unpack Your System

Caution: If your system arrives in cold weather, do not unpack the computer or the monitor until they have been allowed to come to room temperature. Immediately exposing them to the warm room may cause condensation to occur, which may damage the units. If condensation does occur, allow the units to completely dry before operating them.

After you have determined that the packaging is undamaged follow these steps:

1. Unpack and carefully inspect your system.
2. Taking care not to damage the packing material, carefully open the cardboard box containing the computer and remove the system unit, keyboard and any other accessories that you may have ordered.
3. Carefully unpack the monitor and all accessories from the monitor package. Be careful not to damage the packing material.
4. Inspect all items for damage that may have occurred during shipment. ***For your protection, report any damage to the shipper immediately.***

We highly recommend that you save the packaging in the event that you need to move or ship the system some time in the future.

Check Your Packing List

Now that you have everything out of the packages, take the time to check the packing list to be sure you received everything. If you discover that an item is missing, call Micron Electronics, Inc. immediately to receive a replacement. Refer to Appendix A for contact information.

Setup

Getting Started

Before your new system left the factory, Micron configured the hardware. The display adapter was set to work with your monitor and the hard disk was partitioned and formatted with DOS using the standard default settings for your machine. Your computer system is ready to go. All you have to do is plug it in.

What You Need

- A grounded power outlet
- Phillips-head screwdriver
- Power filter/suppressor protector (recommended)

Putting It All Together

To complete your setup refer to the following steps:

1. Take a moment and review the case figures on pages 1-5 through 1-10 to acquaint yourself with the front and back of your system.

2. Check the voltage selector on the rear of the unit. Be sure it is switched for the proper voltage (115V in the United States and Canada).

3. Place the monitor where you wish, as long as its cable can still reach the video connector at the rear of the computer.

4. Unpack the power cable for the computer and plug the appropriate end into the power inlet at the back of the system. Insert the other end into a grounded power outlet. We highly recommend that you obtain a protection device such as an uninterruptable power supply (UPS), power filter or surge suppressor. In this way you will be providing the utmost protection for your system and data.

5. ***Ensure that the system is turned OFF before proceeding. Attaching peripherals while the power is on may damage the unit or the peripheral.***

6. Locate the monitor's power cable and plug the appropriate end into the monitor (if not already attached). Insert the other end into the grounded outlet or protection device.

7. Find the video cable and attach the appropriate end into the monitor (if not already attached) and attach the other end into the video connector (located in one of the expansion slots at the rear of the unit). If the connection is loose on either end, tighten the integrated screws at both ends of the cable for a secure connection. For more information about the setup, use, and maintenance of your video monitor, please refer to the manual that was supplied with it.

8. Insert the ends of the keyboard and mouse cables into the keyboard and mouse connectors at the rear of the computer system. Take care, for the connectors are keyed in such a way that the plugs can only be inserted if oriented correctly. Refer to the case drawings on pages 1-5 through 1-10 for the location of the proper connector. ***If it does not plug in easily, do not force it.***

Your system should now be ready to use. You may have other devices or peripherals to install, but it is best to ensure the basic system is operating correctly before adding any options.

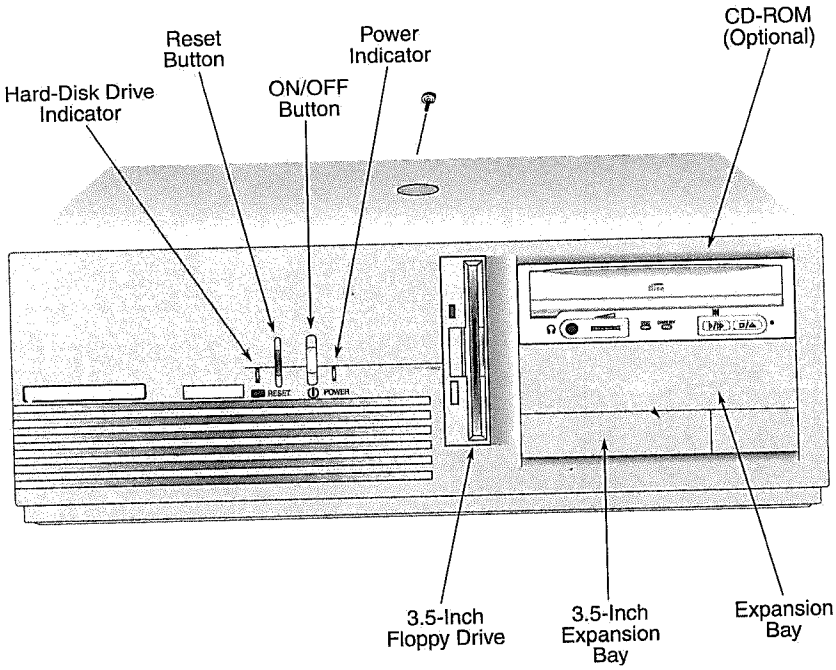


Figure 1-1. Desktop Case-Front

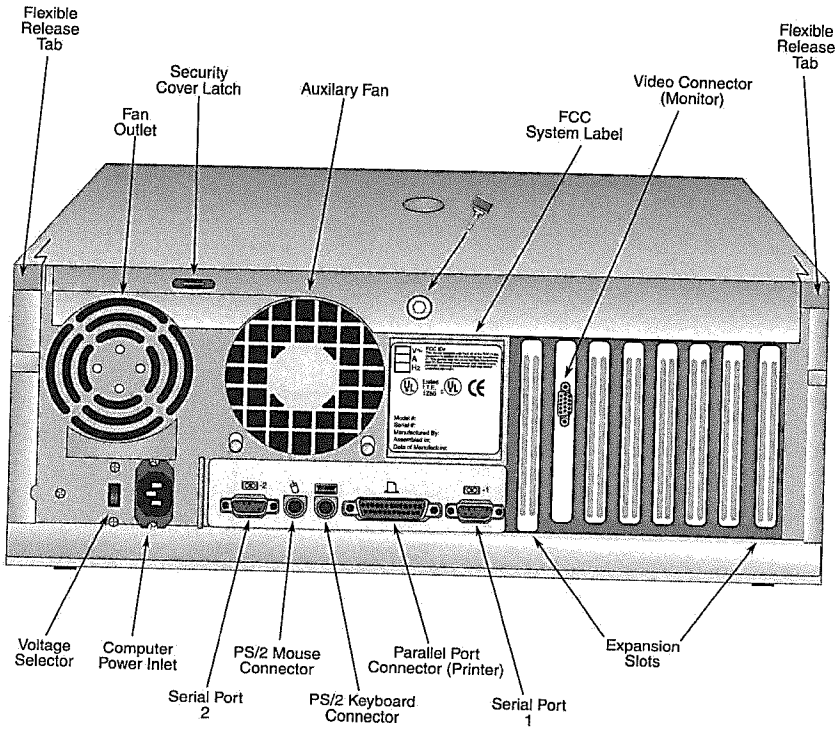


Figure 1-2. Desktop Case-Rear

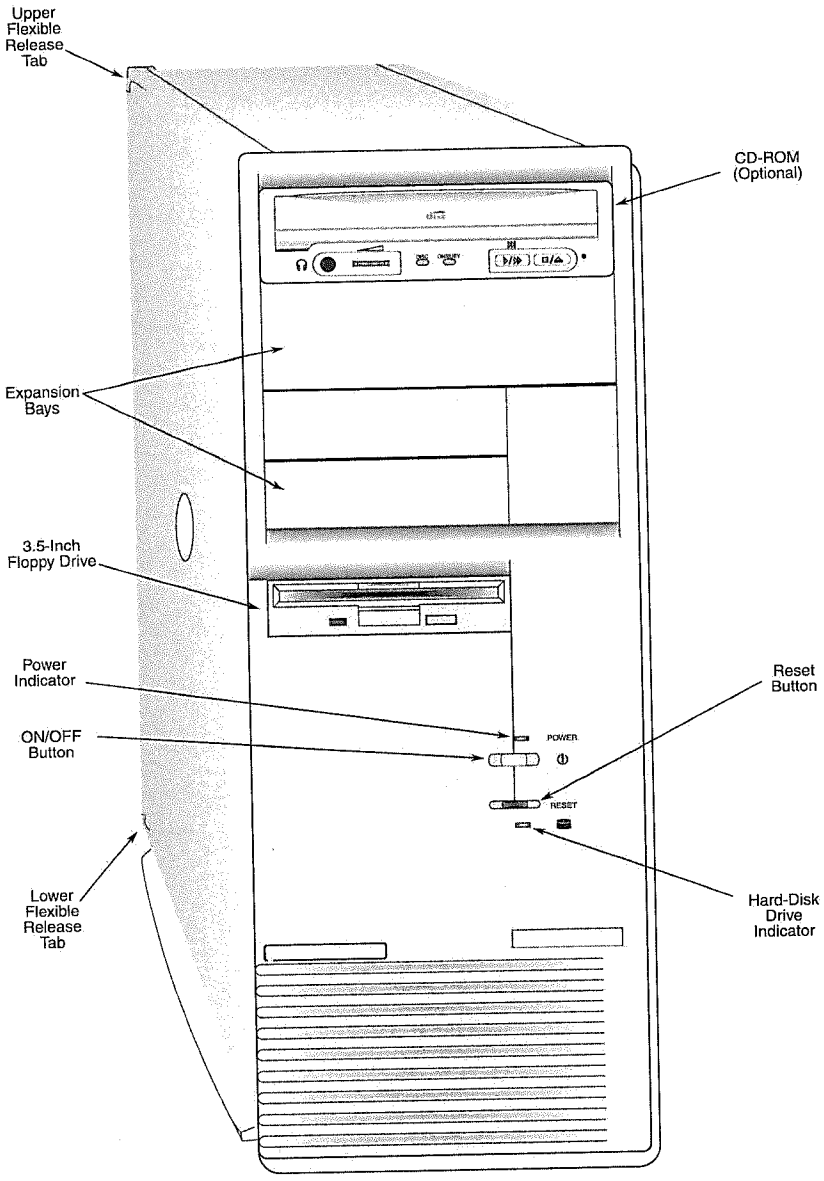


Figure 1-3. Mini Tower Case–Front

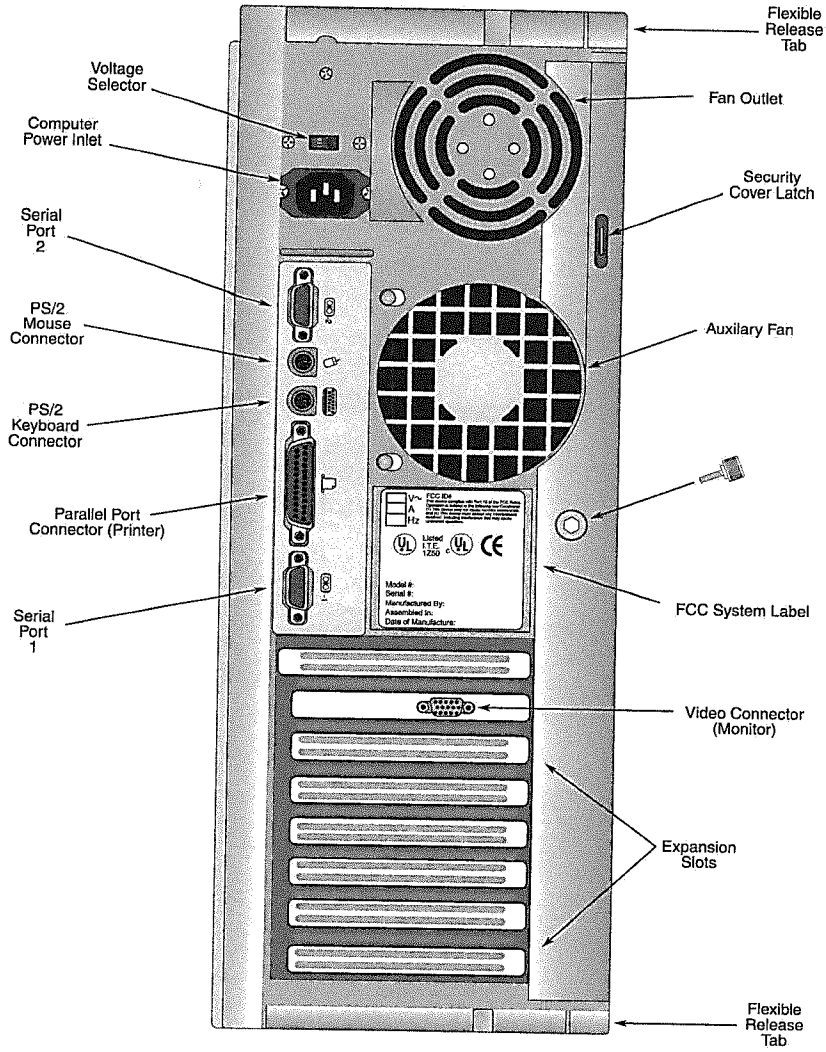


Figure 1-4. Mini Tower Case-Rear

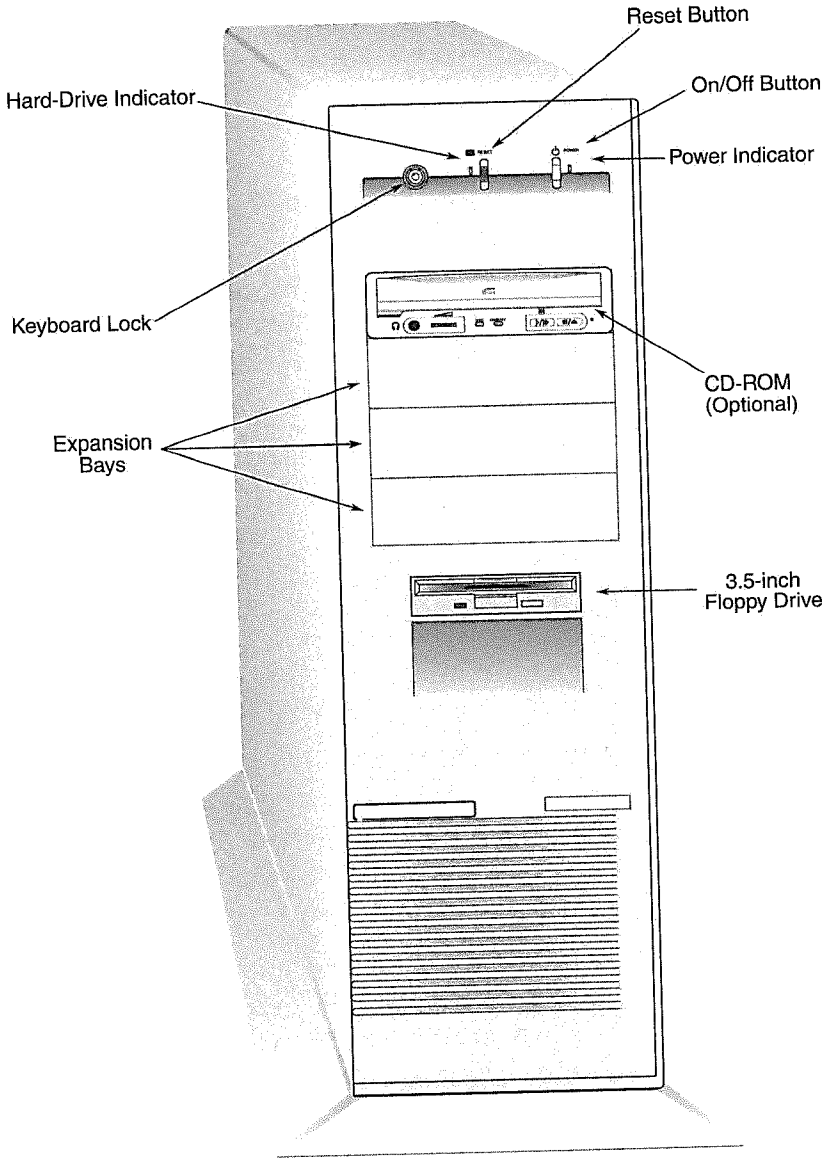


Figure 1-5. Tower Case-Front

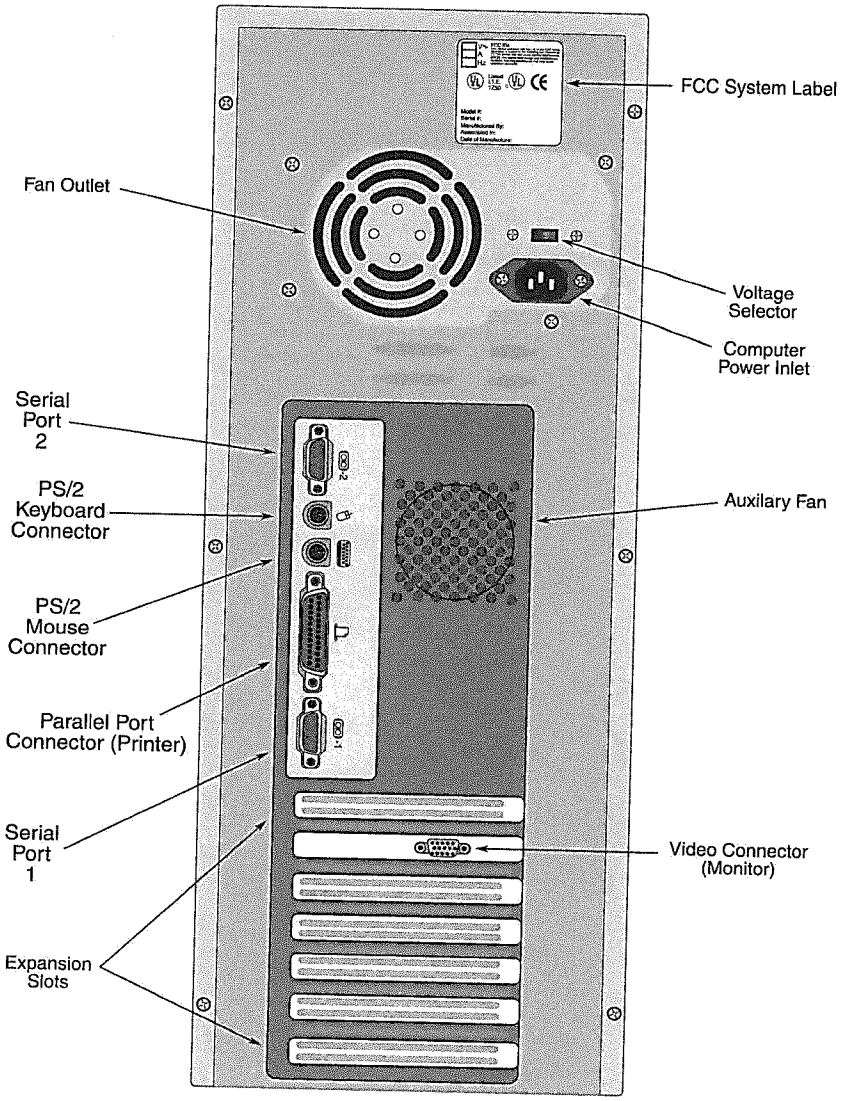


Figure 1-6. Tower Case-Rear

Running Your System for the First Time

1. Power up the monitor. If you are unsure about how to go about this, please refer to the monitor's manual for more information.

2. Remove any floppy disks from the floppy drives.

3. Power up the computer system by firmly pushing and releasing the On/Off button on the front panel of the system. The power indicator should light up and the fan and hard drive should begin to run.

The system diagnostics begins at this time. The keyboard is initialized indicated by the keyboard LEDs blinking momentarily. The Num Lock LED remains on. Next, the screen initializes and a message indicating what type of video adapter is installed. The memory will be counted and tested.

Finally, the system is booted.

If you experience any problems during the power up sequence, please refer to Chapter 4, "Common Problems."

Turning Off Your System

Micron recommends that you power down your system in the following order:

1. Exit all applications you are running and save any changes.

2. Make sure that ALL disk activity has completely stopped. The floppy and hard drive indicator lights should be off and the floppy drive motors should be stopped. Hard disks continue to spin until the system power is shut off.

3. Turn off the computer system, then the monitor.

Maintenance

Operating Environment

Your Micron computer has been manufactured to the highest standards. With proper care, it should provide years of trouble-free service.

To ensure that your system has the longest life possible, it should be placed in an area with good ventilation and low humidity, out of direct sunlight and away from heat sources or lamps. Be sure the rear cooling-fan opening is not obstructed as it is necessary to keep the system cool. Never expose the system to moisture of any sort, for this could lead to fire or shock hazard. Stay away from areas with high levels of dust, dirt, or smoke.

Transporting

Always shut the system off before moving it. Any sudden jar or shock may permanently damage the hard drive. Hard drives are more resistant to shock if they are shut down.

If you are transporting the system over a distance, it is a good idea to completely repackage it in its original packing material. If the original packaging is unavailable, pack all components with as much padding as reasonably possible to ensure that the units are not exposed to excessive vibration or shock.

Cleaning

If the case becomes dirty through constant use or handling, use only a damp, dust-free cloth. Do not use abrasives or solvents as these may mar or scratch the case. Window cleaner and a cloth can be used to clean the monitor, if the monitor has been turned OFF first. Never apply the window cleaner directly to the monitor screen. Always spray the cloth first, then wipe down the screen.

Cleaning kits designed to clean floppy drives are available from most computer stores and should be used periodically.

If you are operating your system in an environment heavy with smoke or dust, you should occasionally open the unit and *with great care,* clean the components with a vacuum (special vacuums are available just for this purpose). Be careful to not loosen any of the components.

If liquid is spilled into the keyboard, immediately unplug it, allow the fluid to drain out by tipping the keyboard upside down, and dry the keyboard overnight before using it again.

Protecting

To prevent normal electrical problems such as spikes or surges, install a power surge/filter between the power outlet and *all* of the connected components. If even one component is not connected, the entire system could be at risk.

If a severe storm enters your area, completely unplug the entire system from all electrical sources, including phone lines. Lightning can travel in on any line and destroy all connected components.

If possible, do not turn the system on and off frequently. This stresses the power supply and may shorten the life of some components. To restart the system, press the reset button located in the front of the case. If applications are open and the system is reset or if the hard drive is active, data loss will most certainly occur. If you do not use the reset button to restart the system, be sure the hard drive has come to a complete stop before turning the computer on again.

Backing Up

Even with today's technology, data loss can occur at any time. We cannot stress enough that you should back up often. There is a large number of backup systems available from retail and mail-order outlets, including floppy drive backup systems, tape backup systems, and optical backup systems. Any of these alternatives are highly recommended. Complete, frequent backups can save years of data from total and irretrievable destruction. If you require additional information about backup systems or options, please contact Micron Electronics, Inc.

Removing the System Cover

Desktop Case

Refer to the Figure 1-7 on page 1-15. No tools are required.

1. It is not necessary to disconnect the cable connectors on the back of the computer before opening the cover. However, note where the cables connect to the back for future reference . (If you have a video camera, a quick scan of the rear case is helpful).

2. Loosen the thumbscrew until it disengages the threads located in the back top center of the computer case. On the rear left and right sides of the cover are flexible release tabs.

3. Facing the front of the computer, with your left and right thumbs, push in on the release tabs and push the cover rearward. The top cover can now be lifted up and removed from the frame. Note the location of the top covers latching hooks and their relationship to the channels on the top frame of the case. These must be aligned when replacing the top cover.

To replace the cover, gently lower the top latching hooks into the top chassis channels before pushing the rear of the cover into place. When the cover is pushed forward the flexiable release tabs will lock into place and the thumb screw can be fully tightened.

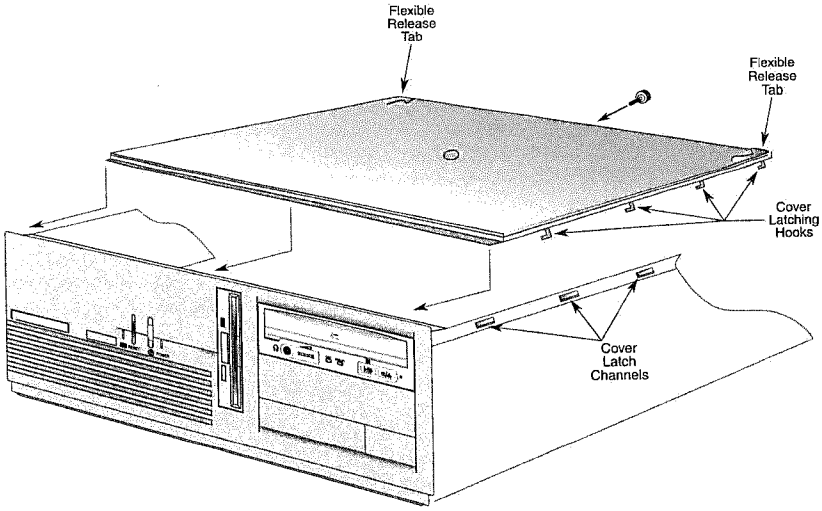


Figure 1-7. Desktop Cover Removal

Mini Tower Case

Refer to the Figure 1-8 on page 1-17. No tools are required.

1. It is not necessary to disconnect the cable connectors on the back of the computer before opening the cover. However, note where the cables connect to the back for future reference . (If you have a video camera, a quick scan of the rear case is helpful).

2. Lay the computer on it's right side by rotating it clockwise 90 degrees. Loosen the thumbscrew until it disengages the threads located in the back center of the computer cover. On the rear top and botttom sides of the cover are flexible release tabs.

3. With your left and right thumbs, push in on the release tabs and push the cover rearward. The top cover can now be lifted up and removed from the frame. Note the location of the top covers latching hooks and their relationship to the channels on the top frame of the case. These must be aligned when replacing the top cover.

To replace the cover, gently lower the top latching hooks into the top chassis channels before pushing the rear of the cover into place. When the cover is pushed forward the flexiable release tabs will lock into place and the thumb screw can be fully tightened.

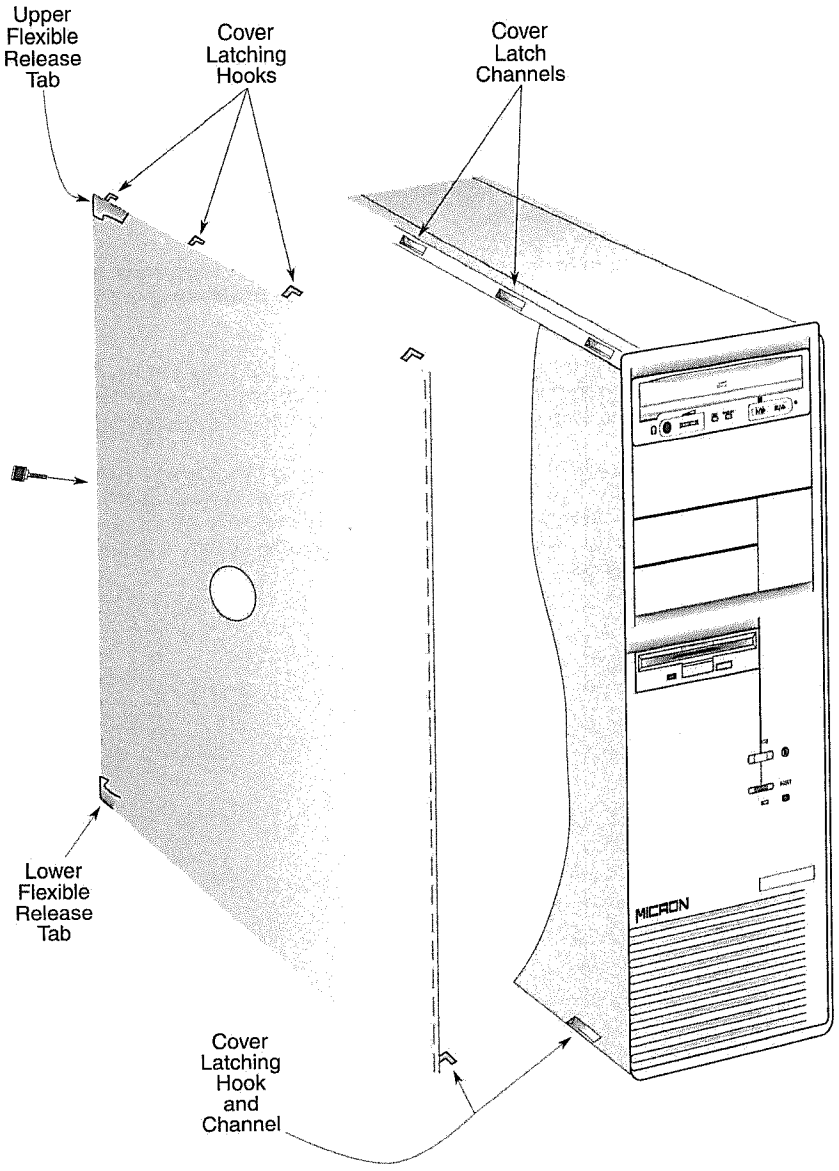


Figure 1-8. Mini Tower Cover Removal

Tower Case

Refer to the Figure 1-9 on page 1-19. Use a #2 phillips-head screwdriver or a1/4" hex driver.

1. It is not necessary to disconnect the cable connectors on the back of the computer before opening the cover. However, note where the cables connect to the back for future reference . (If you have a video camera, a quick scan of the rear case is helpful).

2. Remove the screws from the back of the case cover. Keep these screws together (they are a different size than the other screws in your system) for they are not to be interchanged.

3. With flat palms placed on each side of the cover, pull the cover back until the cover's front top lip clears the chassis channel (about 3/4"). Grasp the top-rear of the cover and lift up in one smooth motion until the cover clears the chassis.

To replace the cover, gently lower the top lip of the cover into the chassis channel at an angle before lowering the rear into place. With the lip inserted in the channel, push the rear of the cover forward to seat it flush and replace the screws. Note the metal rail guides located inside the bottom of the cover which must fit over the bottom metal case frame when the cover is replaced.

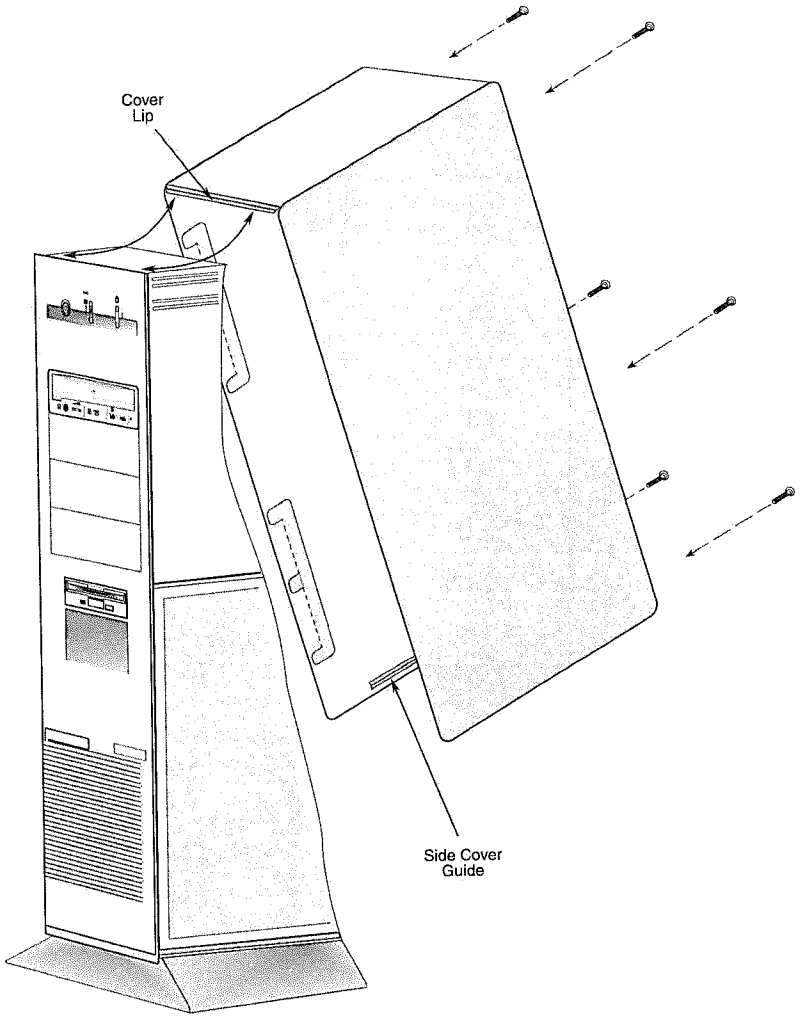


Figure 1-9. Tower Cover Removal

Chapter 2

Technical Information

Overview **2-2**
HOME MPC Features 2-2
Memory 2-3
HOME MPC System Board **2-4**
Jumper Settings **2-5**
Configuration 2-5
Installing Add-On Peripherals 2-8
SIMM Modules **2-10**
Installing SIMM Modules 2-11
Removing Simm Modules 2-13
DRAM Memory 2-14

Overview

Micron's HOME MPC system board is a high-performance system board designed to be the basis for your personal computer or workstation. The HOME MPC is based on the PCI local bus and the Intel 430HX chip set.

HOME MPC Features

- ATX footprint form factor.
- Three ISA slots and four PCI local bus slots with one shared ISA/PCI slot.
- L2 Synchronus Pipeline Burst SRAM support.
- Support for up to 128MB of on-board system EDO memory.
- PCI Mode 4 support.
- Two high-speed 16550 compatible serial ports.
- Bi-directional parallel port that is EPP (Extended Parallel Protocol) and ECP (Extended Capabilities Port) compatible.
- Intels 430HX PCIset.
- Floppy controller for two floppy drives (Supports 2.88MB, 1.44MB, 1.2MB, 720KB, and 360KB floppy drives).
- Upgradeable 1MB Flash AMI EPROM BIOS.

Memory

The HOME MPC system board has two banks of DRAM (four sockets), which provide 128MB maximum memory using on-board SIMMs. The HOME MPC also has 256K of Synchronus Pipeline Burst cache installed on-board. This section explains the type of SIMMs supported, lists the rules of adding memory to the system, gives some examples of common memory configurations, and shows how to physically install the new SIMMs.

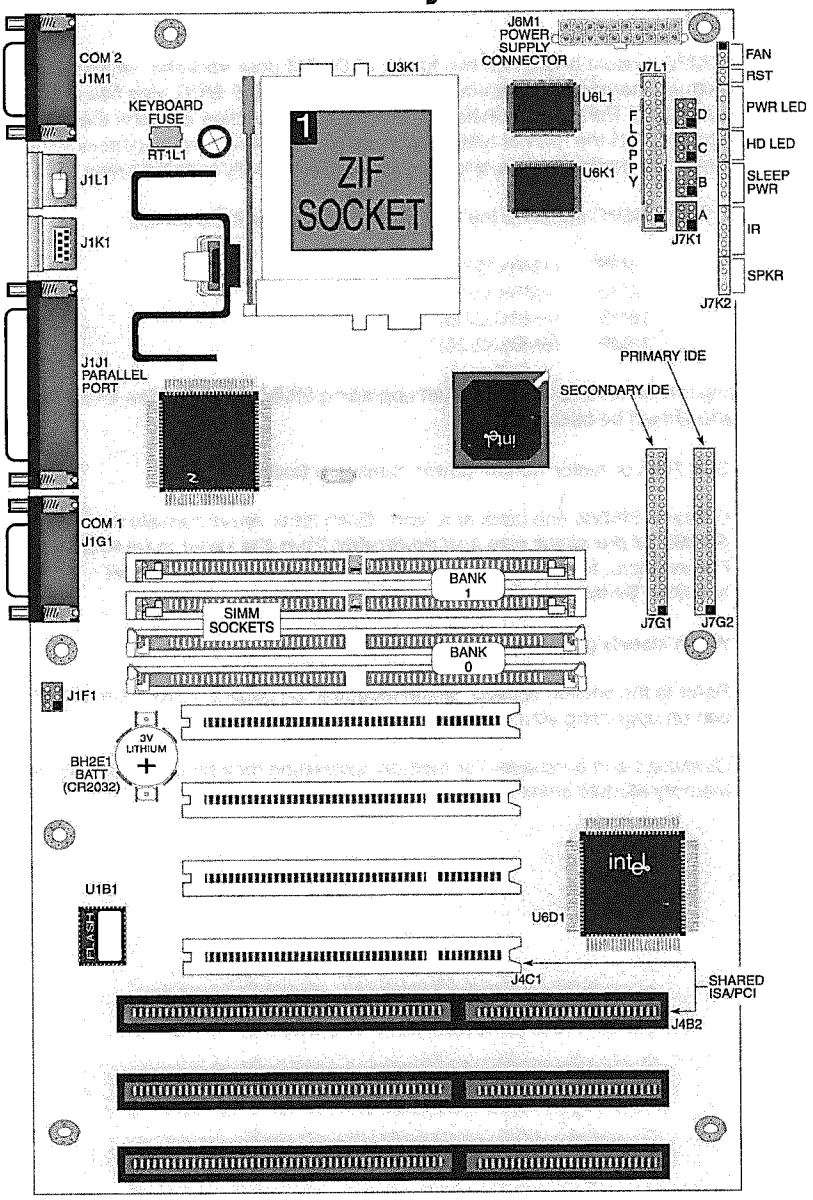
The Micron HOME MPC supports the following 72 pin, 60 or 70ns SIMMs:

4MB	(1MBx32/36)
8MB	(2MBx32/36)
16MB	(4MBx32/36)
32MB	(8MBx32/36)

The following is a list of rules to follow when upgrading SIMMs. If you follow these rules, your upgrade should be trouble free:

- Use 70ns or faster SIMMs (lower number is faster).
- Upgrade SIMMs one bank at a time. Each bank ***must contain two SIMMs of the same size and preferably from the same manufacturer.*** For example, to add 16MB of memory to the system board, install two 8MB SIMMs into the same bank.
- When installing SIMMs, start with bank 0.
- Refer to the section entitled "SIMM Modules" on page 2-10 for more information on upgrading your memory.
- Questions and purchases for memory expansion may be directed to Micron Memory Module sales (1-800-438-3343).

HOME MPC System Board



■ The black square specifies pin 1 of the component (Jumper, Connectors, and Sockets).

Figure 2-1. HOME MPC System Board

Jumper Settings

Configuration

The jumpers on the Micron HOME MPC are preset at the factory and in most cases do not need to be changed. However, if certain functions need to be changed, the jumpers may need to be reconfigured. Figure 2-2. shows an example of a jumper.

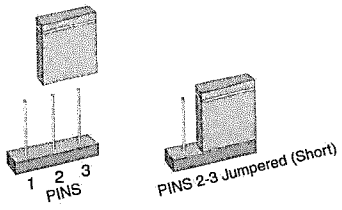


Figure 2-2. Example of a Jumper and Jumper Block

Refer to the following tables to set the jumpers.

Jumper Block	Function	Pins
J7K1-A	CMOS Settings - Keep	4-5
	CMOS Settings - Clear	5-6
	Password Enabled	1-2
	Password Clear/Disabled	2-3
J7K1-B	CMOS Access - Allowed	1-2
	CMOS Access - Denied	2-3

Figure 2-3. CMOS Settings Selection

Jumper	Function	Pins
J1F1	Flash Recovery Normal	1-2
	Flash Recovery	2-3
	Boot Block Normal	4-5
	Boot Block Recovery	5-6

Figure 2-4. Recovery Jumper

CPU Freq. (MHz)	Host Bus Freq.(MHz)	J7K1_C	J7K1_D	CPU Clock Multiplier	J7K1_A
Reserved	66	1-2 5-6	1-2 5-6	3.0	The VR / OVD setting is dependent on the specific CPU stepping: 5-6 for OVD, 4-5 for VR.
166	66	1-2 5-6	2-3 5-6	2.5	
150	60	2-3 4-5	2-3 5-6	2.5	
133	66	1-2 5-6	2-3 4-5	2.5	
120	60	2-3 4-5	2-3 4-5	2	
100	50	2-3 5-6	2-3 4-5	2	
100	66	1-2 5-6	1-2 4-5	1.5	
90	60	2-3 4-5	1-2 4-5	1.5	
75	50	2-3 5-6	1-2 4-5	1.5	
Reserved	N/A	2-3 5-6	1-2 5-6		
Reserved	N/A	2-3 4-5	1-2 5-6		
Reserved	N/A	1-2 5-6	1-2 5-6		

Figure 2-5. CPU Configuration

Connectors	Function	Notes
J7L1	Floppy Connector	
J7G2	Primary IDE Connector	Primary IDE
J7G1	Secondary IDE Connector	Secondary IDE
J1K1	PS/2 Keyboard Connector	
J1L1	PS/2 Mouse Connector	
J6M1	Power Supply Connector	
J1J1	Parallel Port Connector	Can be disabled in the CMOS configuration screen.
J1G1	Serial Port 1 (Com 1)	Can be disabled in the CMOS configuration screen.
J1M1	Serial Port 2 (Com 2)	Can be disabled in the CMOS configuration screen.

Figure 2-6. Connectors

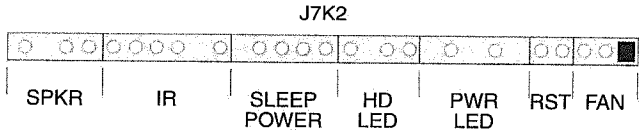


Figure 2-7. J7K2 Bezel Connectors

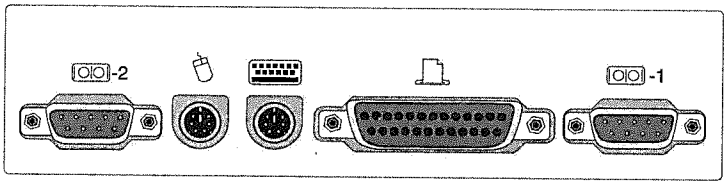


Figure 2-8. Back Panel I/O Connectors

Installing Add-On Peripherals

The HOME MPC accommodates ISA and PCI Local Bus cards. Extra DRAM can also be added to the system board. The following describes how to install the PCI card and DRAM memory.

PCI Local Bus Card

PCI Local Bus slots accommodate most PCI-approved Local Bus cards. To install a PCI Local Bus card:

1. Power OFF the computer system.
2. Locate an unused PCI slot on the HOME MPC.
3. Insert the card with the bottom edge level. Never insert the card at an angle.
4. Holding the card at the center of the top edge, gently push straight in. Do not force the card into place. If it does not fit, take it out and try again.
5. Make sure the card is fully inserted.
6. Secure the card with a bracket screw.

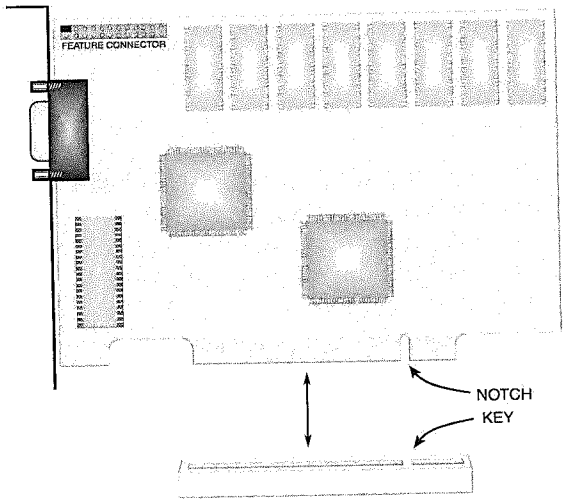


Figure 2-9. Installing a PCI Local Bus Card

NOTE: The ISA slot (J4B2) and the PCI slot (J4C1) are "shared slots." When a PCI card is installed into the (J4C1) PCI slot, the (J4B2) ISA slot is disabled. Conversely, when a peripheral card is installed into the (J4B2) ISA slot, the (J4C1) PCI slot is disabled.

SIMM Modules

The memory in this system can be increased up to a maximum of 128MB by installing SIMMs (single in-line memory modules). To install SIMMs, first locate the memory banks on the system board (refer to Figure 2-1). Follow figure 2-13 on page 2-14 for the possible installation combinations.

CAUTION: Modules are Electrostatic Sensitive.

Even a small electrostatic discharge could damage the module. A damaged module might not fail immediately, but over time it will become worse, possibly causing an "intermittent" problem. Be very careful to handle the boards ONLY by the edges. DO NOT touch the gold/silver edge-connectors or any of the components on the board. Leave the module in the antistatic bag until ready for installation.

1. Switch the computer off. Leave the computer plugged in to the outlet to provide an electrical ground to discharge static electricity.

2. Touch the metal case of the power supply or the metal lining inside the computer case. This will drain the static charge from your body and will keep the modules from being electrically damaged.

3. Keep body movement to a minimum as you remove and handle the modules. Antistatic wrist straps with clip-on ends are commercially available.

Installing SIMM Modules

The HOME MPC has four, 36-bit (72-pin) SIMM sockets on-board and can accommodate memory from 8MB up to 128MB using the following SIMM sizes:

- 4MB - organized as 1MB x 32 or 1MB x 36
- 8MB - organized as 2MB x 32 or 2MB x 36
- 16MB - organized as 4MB x 32 or 4MB x 36
- 32MB - organized as 8MB x 32 or 8MB x 36

The system board requires at least two SIMM sockets (one bank) to be filled. Start with filling bank 0, then fill bank 1. The SIMMs must be rated at 70ns or faster.

Bank 0 must always be filled and contain two identically sized SIMMs.

Bank 1, if filled, must also contain two SIMMs of the same size.

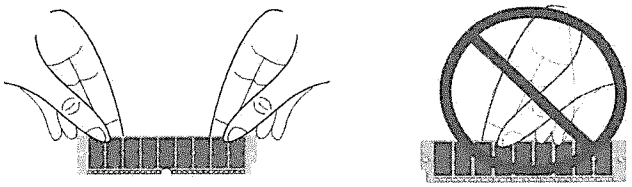
Step 1: Using both hands, carefully set the SIMM into the socket at a **45 degree angle,** tilted towards the CPU socket (refer to Figures 2-10 and 2-11). Do not force it in or damage may result. Note that the SIMM modules are keyed in such a way that they cannot be inserted incorrectly (refer to Figure 2-12 on page 2-13). If you are having difficulty placing them into the socket, check to see that you are not attempting to insert them backwards. **Do not lock the module into position at this time.**

Step 2: Check to make sure the module is centered in the socket, and that the connector pins of the module line up with the socket connector pins.

A) Be sure the module is centered and connector pins are aligned.
B) When the module is locked in place, be sure both silver locking tabs (on the ends of the socket) are locked properly.

Step 3: Using both hands and applying equal pressure on each end of the module, lock the module into the socket by pushing forward. Make sure both locking tabs have seated properly. The module should now be standing upright in the socket .

WARNING: Failure to observe proper insertion guidelines may result in damage to the SIMM and/or the socket.



Correct Incorrect

Figure 2-10. Handling a SIMM

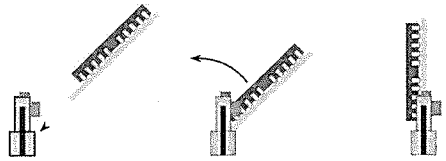


Figure 2-11. Proper SIMM Insertion

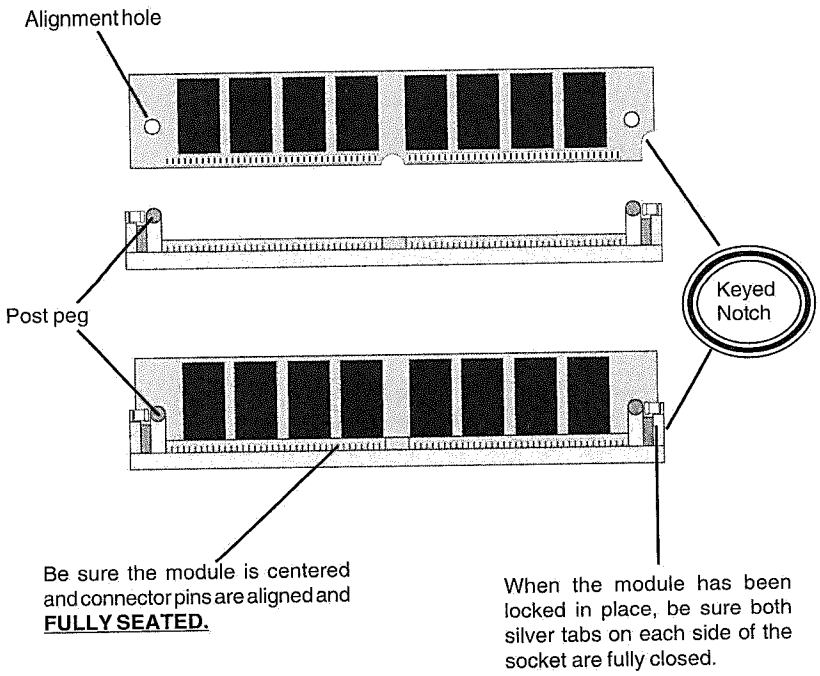

Alignment hole
Keyed Notch
Post peg
Be sure the module is centered and connector pins are aligned and FULLY SEATED.
When the module has been locked in place, be sure both silver tabs on each side of the socket are fully closed.

Figure 2-12. SIMMs with Keyed Notch

Removing SIMM Modules

To remove SIMM modules, simply reverse the above procedure with the following differences. Using the thumbs of both hands, gently pry the locking tabs apart so they no longer hold the module in the socket. While holding the tabs apart, gently pull the module backward to clear the tabs (this should put the module at an angle to the socket). Carefully remove the loose module from the socket.

DRAM Memory

The following table lists the possible memory size combinations usable for the installation of SIMMs.

Total	Bank 0	Bank 0	Bank 1	Bank 1
8MB	4MB	4MB		
16MB	4MB	4MB	4MB	4MB
16MB	8MB	8MB		
24MB	4MB	4MB	8MB	8MB
32MB	8MB	8MB	8MB	8MB
32MB	16MB	16MB		
40MB	4MB	4MB	16MB	16MB
48MB	8MB	8MB	16MB	16MB
64MB	16MB	16MB	16MB	16MB
64MB	32MB	32MB		
72MB	4MB	4MB	32MB	32MB
80MB	8MB	8MB	32MB	32MB
96MB	16MB	16MB	32MB	32MB
128MB	32MB	32MB	32MB	32MB

Figure 2-13. DRAM Memory Configuration

Chapter 3

The BIOS Setup Program

Setup **3-2**
BIOS Setup 3-2
When Setup Should be Run 3-2
How to Run the Setup Program **3-3**
Setting the CMOS Main Screen 3-5
Setting the CMOS Advanced Screen 3-11
Setting the CMOS Security Screen 3-19
Exiting/Saving the CMOS Selections **3-21**

SETUP

BIOS Setup

Every AT-compatible computer has a battery supported CMOS memory location that stores information about the system and peripheral configuration. Because of the attached battery, the CMOS is constantly provided with power, even when the computer has been turned off.

During the boot sequence, a special software application called the BIOS (Basic Input Output System), located in read-only (ROM) memory on the system board, reads the information contained in the CMOS and configures the CPU and other peripheral devices. If the CMOS information is incorrect, the system may not operate correctly until accurate information is stored in the CMOS. The Setup Program has been built into the system to provide the means for changing the CMOS.

When Setup Should Be Run

Although the Micron HOME MPC arrives fully configured, the system may need to be adjusted to fit your needs.

Whenever peripherals are added or removed from the system (for example, if you add a hard disk or more memory), you must run Setup to inform the system about the new configuration.

If the information in CMOS is lost, the system will not operate properly unless Setup is used to restore the system configuration.

How to Run the Setup Program

The Setup program is used to configure the computer's BIOS (Basic Input/Output System). The computer's BIOS is responsible for configuring the motherboard and providing hardware information to the operating system. In order for the computer to run properly, run the Setup procedure after first installing the system board and whenever you make a hardware change to the system.

After the system is turned on and goes through a memory test, the Power-Up Screen (Figure 3-1) appears on your monitor.

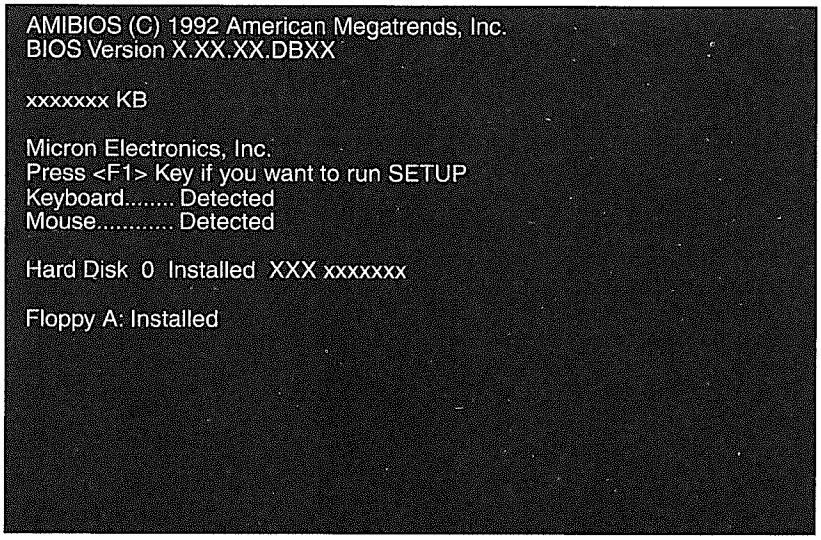


Figure 3-1. Power-Up Screen

When "Press <F1> to enter SETUP" appears at the bottom of the screen, press the <F1> key to begin the Setup procedure. The CMOS Main Screen (Figure 3-2) should appear and the prompt should be on the System Date line. The Setup procedure can only be activated during the boot sequence.

The HOME MPC system board has the following CMOS configuration screens:

Main Screen
- IDE 0 Master/Slave
- IDE 1 Master/Slave
- Boot Options

Advanced
- Integrated Peripherals
- Advanced Chipset Configuration
- Power Management Configuration
- Plug and Play Configuration

Security

Exit

Each screen configures specific parameters for the HOME MPC system board. The following section is an overview of each screen and its functions.

Setting the CMOS Main Screen

The CMOS Main Screen (Figure 3-2) is used to set the date and time, to set the floppy drive types, to configure the hard disks, and to configure the Boot Options. To move between the categories, use the up arrow and the down arrow keys.

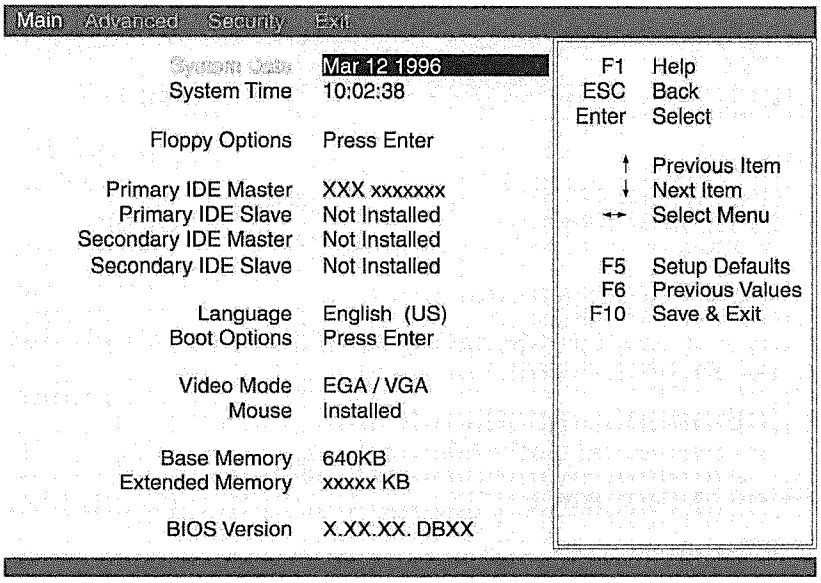


Figure 3-2. Main Screen

System Date and Time

Specifies the current date. Select the month from a pop-up menu. System Time Specifies the current time.

Floppy Options

When selected, this pops up the Floppy Options menu.

Floppy Options Subscreen

Floppy A:
Reports if a diskette drive is connected to the system. There are no options.

Floppy B:
Reports if a second diskette drive is connected to the system. There are no options.

Floppy A: Type
Specifies the physical size and capacity of the diskette drive. The options are Disabled, 360 KB, 5.25-inch; 1.2 MB, 5.25-inch; 720 KB, 3.5-inch; 1.44/1.25 MB, 3.5-inch; 2.88 MB, 3.5-inch. The default is 1.44/1.25 MB, 3.5-inch.

Floppy B: Type
Specifies the physical size and capacity of the diskette drive. The options are Disabled, 360 KB, 5.25-inch; 1.2 MB, 5.25-inch; 720 KB, 3.5-inch; 1.44/1.25 MB, 3.5-inch; 2.88 MB, 3.5-inch.

Floppy Access:
Reports Floppy access mode. Options are Read/Write or Read Only.

IDE Settings (See Page 3-7.)

Language

Specifies the language of the text strings used in the Setup program and the BIOS. The options are any installed languages.

Boot Options (See Page 3-9.)

Video Mode

Reports the video mode. There are no options.

Mouse

Reports if a mouse is installed or not. There are no options.

Base Memory

Reports the amount of base memory. There are no options.

Extended Memory

Reports the amount of extended memory. There are no options.

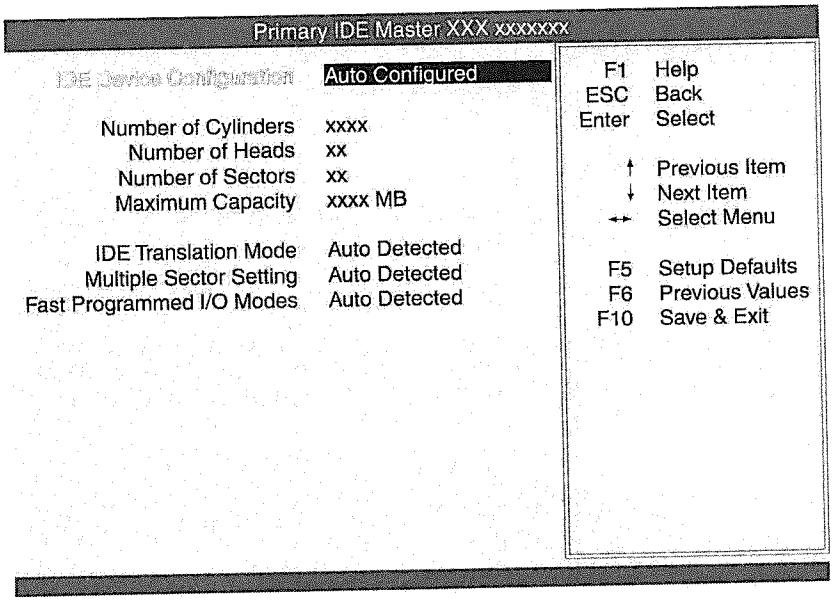


Figure 3-3. IDE Master or Slave Screen

Primary IDE Master/Slave and Secondary Master/Slave

Reports if a hard disk is connected to the system. When selected, this brings up the Hard Disk Configuration subscreen.

IDE Device Configuration

Used to manually configure the hard drive or have the system auto configure it. The options are Auto Configured and User Definable. The default is Auto Configured. If you select User Definable then the Number of Cylinders, Number of Heads, and Number of Sectors items can be modified.

Number of Cylinders

If Hard Disk Type is set to User Definable, you must type the correct number of cylinders for your hard disk. If Hard Disk Type is set to Auto Configured, this reports the number of cylinders for your hard disk and cannot be modified.

Number of Heads

If Hard Disk Type is set to User Definable, you must type the correct number of heads for your hard disk. If Hard Disk Type is set to Auto Configured, this reports the number of heads for your hard disk and cannot be modified.

Number of Sectors

If Hard Disk Type is set to User Definable, you must type the correct number of sectors for your hard disk. If Hard Disk Type is set to Auto Configured, this reports the number of sectors for your hard disk and cannot be modified.

Maximum Capacity

Reports the maximum capacity of your hard disk. It is calculated from the number of cylinders, heads, and sectors. There are no options here.

IDE Translation Mode

Specifies the IDE translation mode. The options are Standard CHS (standard cylinder head sector (less than 1024 cylinders), Logical Block, Extended CHS (extended cylinder head sector(greater than 1024 cylinders), and Auto Detected (BIOS detects IDE drive support for LBA).

CAUTION

Do not change this from the option selected when the hard drive was formatted. Changing the option can result in corrupted data.

Multiple Sector Setting

Sets the number of sectors transferred by an IDE drive per interrupt generated. The options are Disabled, 4 Sectors/Block, 8 Sectors/Block, or Auto Detected. The default is Auto Detected. Check the specifications for your hard disk drive to determine which setting provides optimum performance for your drive.

Fast Programmed I/O Modes

Sets how fast transfers on the IDE interface occur. The options are Disabled or Auto Detected. The default is Auto Detected. If set to Disabled, transfers occur at a less than Standard Compatable Mode.

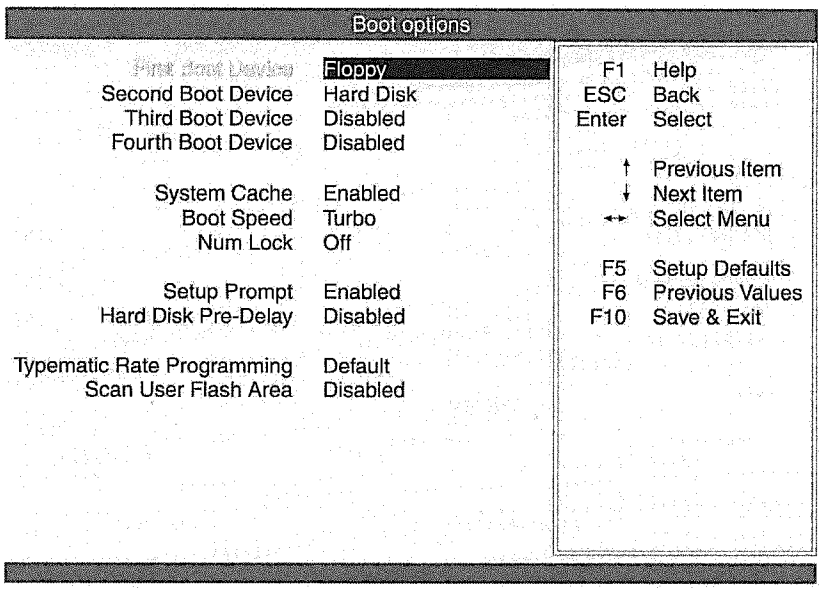


Figure 3-4. Boot Options Screen

Boot Options

First, Second, Third, Fourth Boot Device

Sets which drives the system checks to find an operating system to boot from. The following options are available:

First Boot Device

Select Disabled, Floppy, Hard Disk, CD-ROM, Network.

Second, Third, Fourth Device

Select Disabled, Floppy, Hard Disk, Network.

System Cache

Enables or disables both the primary and the secondary cache memory. The options are Enabled or Disabled.

Boot Speed

Sets the system's boot speed. The options are Deturbo and Turbo. The default is Turbo. If Turbo is selected, boot-up occurs at full speed. If Deturbo is selected, the board operates at a slower speed.

Num Lock

Sets the beginning state of the Num Lock feature on your keyboard. The options are On and Off.

Setup Prompt

Turns on (or off) the "Press <F1> Key if you want to run Setup" prompt during the power-up sequence. The options are Enabled and Disabled.

NOTE

This option has no effect on your ability to access the Setup program. It only toggles the prompt.

Hard Disk Pre-delay

Sets the hard disk drive pre-delay. The options are Disabled, 3, 6, 9, 12, 15, 21, or 30 seconds. The default is 3 seconds. When enabled, this option causes the BIOS to wait the specified time before it accesses the first hard drive. If your system contains a hard drive, and you don't see the drive type displayed during boot-up, the hard drive may need more time before it is able to communicate with the controller. Setting a pre-delay provides additional time for the hard drive to initialize.

Typematic Rate Programming

Sets the typematic rates. The options are Default and Override. Choosing Override enables Typematic Rate Delay and Typematic Rate.

Typematic Rate Delay

Sets how long it takes for the key-repeat function to start when you hold down a key on the keyboard. The options are 250, 500, 750, and 1000 millisecond delays. The default is 250. If Typematic Rate Programming is set to Default, this option will not be visible.

Typematic Rate

Sets the speed at which characters repeat when you hold down a key on the keyboard. The higher the number, the faster the characters repeat. The options are 6, 8, 10, 12, 15, 20, 24, and 30 characters per second. The default is 6. If Typematic Rate Programming is set to Default, this option will not be visible.

Setting the Advanced Screen

The Advanced Screen (Figure 3-5) is used to select certain options from the Advanced screen (e.g., Peripheral Configuration), the Setup program switches to a subscreen for the selected option. Subscreens are described in the sections following the description of the Advanced screen options.

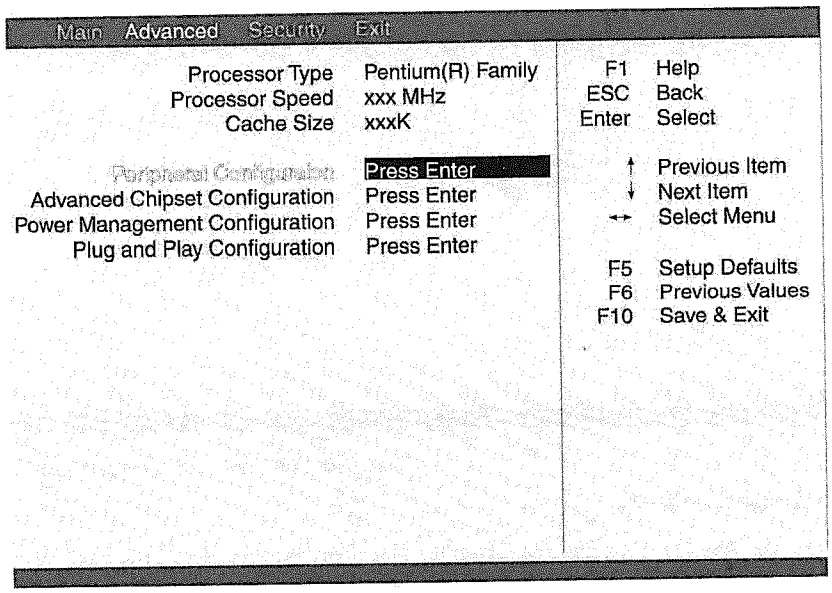


Figure 3-5. Advanced Screen

Processor Type

Reports the CPU type. There are no options.

Processor Speed

Reports the CPU clock speed. There are no options.

Cache Size

Reports the size of the secondary cache. There are no options. If your system contains no L2 cache, this item will not appear.

Peripheral Configuration

When selected, this brings up the Peripheral Configuration subscreen.

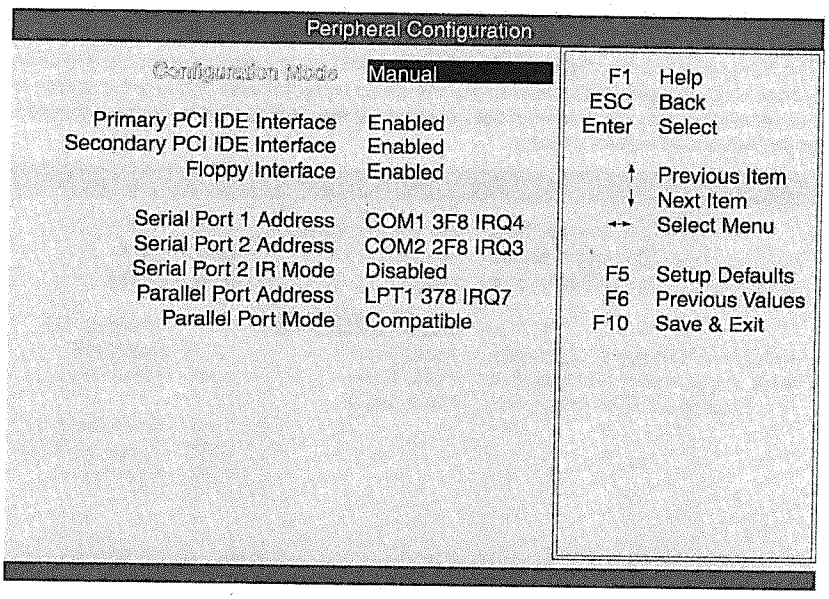


Figure 3-6. Perpherial Configuration Screen

Configuration Mode

Enables you to choose between setting the peripheral configuration yourself, or having the system do it. The options are Auto and Manual. When Auto is selected, the system peripherals are automatically configured during power up. The options below for PCI IDE Interface, Floppy Interface, Serial Port 1 and Serial Port 2 Addresses, Serial Port 2 IR Mode, and the Parallel Port Address cannot be modified. The settings displayed for those options reflect the current state of the hardware.

PCI IDE Interface

Enables or disables the PCI IDE hard disk interface. The options are Enabled and Disabled. (If Configuration Mode is set to Auto, this option cannot be modified.)

Floppy Interface

Enables or disables the diskette drive interface. The options are Enabled and Disabled. (If Configuration Mode is set to Auto, this option cannot be modified.)

Serial Port 1 Address

Selects the address of the serial port. The options are Disabled; COM1, 3F8h; COM2, 2F8h; COM3, 3E8h; and COM4, 2E8h. If the Configuration Mode is set to Auto, the Setup program assigns the first free COM port (normally COM1, 3F8h) as the serial port 1 address, regardless of what is selected under the Serial Port 1 Address option. (If Configuration Mode is set to Auto, this option cannot be modified.)

Serial Port 2 Address

Selects the address of the serial port. The options are Disabled; COM1, 3F8h; COM2, 2F8h; COM3, 3E8h; and COM4, 2E8h. If the Configuration Mode is set to Auto, the Setup program assigns the first free COM port (normally COM2, 2F8h) as the serial port 2 address, regardless of what is selected under the Serial Port 2 Address option. (If Configuration Mode is set to Auto, this option cannot be modified.)

NOTE

If either serial port address is set, the address it is set to will not appear in the options dialog box of the other serial port. Example: With certain video adapters installed, the COM4, 2E8h address will not appear in the options dialog box of either serial port.

Serial Port 2 IR Mode

Makes Serial Port 2 available to infrared applications. The options are Enabled and Disabled. (If Configuration Mode is set to Auto, this option cannot be modified.)

Parallel Port Address

Selects the address and IRQ of the parallel port. The options are Disabled; LPT3, 3BCh, IRQ7; LPT1, 378h, IRQ7; LPT1, 378h, IRQ5; and LPT2, 278h, IRQ5. If the Configuration Mode is set to Auto, the setup program assigns LPT1, 378h, IRQ7 as the parallel port address, regardless of what is selected under the Parallel Port Address option. (If Configuration Mode is set to Auto, this option cannot be modified.)

Parallel Port Mode

Selects the mode for the parallel port. The options are Compatible, Bi-directional, EPP, and ECP. The default is Compatible. Compatible means the parallel port operates in AT-compatible mode. Bi-directional means the parallel port operates in bi-directional PS/2-compatible mode. EPP and ECP mean the parallel port operates high-speed, bi-directionally. This option is not affected by the Configuration Mode field above.

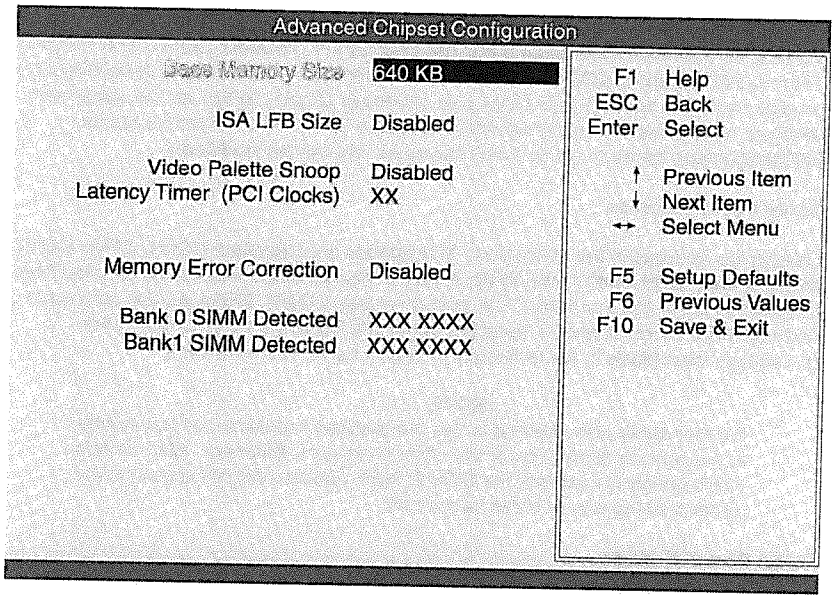


Figure 3-7. Advanced Chipset Configuration Screen

Advanced Chipset Configuration

Base Memory Size

Sets the size of the base memory. The options are 512 KB and 640 KB.

ISA LFB Size

Sets the size of the linear frame buffer. The options are Disabled and 1 MB. If this is set to 1 MB, then the ISA LFB Base Address field will appear.

ISA LFB Base Address

Reports the base address of the LFB. There are no options. This field will not appear if the ISA LFB Size is set to Disabled.

Video Palette Snoop

Controls the ability of a primary PCI graphics controller to share a common palette with an ISA add-in video card. The options are Enabled and Disabled.

Latency Timer (PCI Clocks)

Sets the length of time an agent on the PCI bus can hold the bus when another agent has requested the bus. Valid numbers are between 0 and 256.

Memory Error Correction

Reports when memory error correction is Enabled or Disabled.

Bank 0 SIMM Detected

Reports the type of memory found in the bank 0 SIMM slots. There are no options.

Bank 1 SIMM Detected

Reports the type of memory found in the bank 1 SIMM slots. There are no options.

Power Management Configuration

The Power Management Screen (Figure 3-8) provides the control of system power usage when APM (Advanced Power Management) software is active.

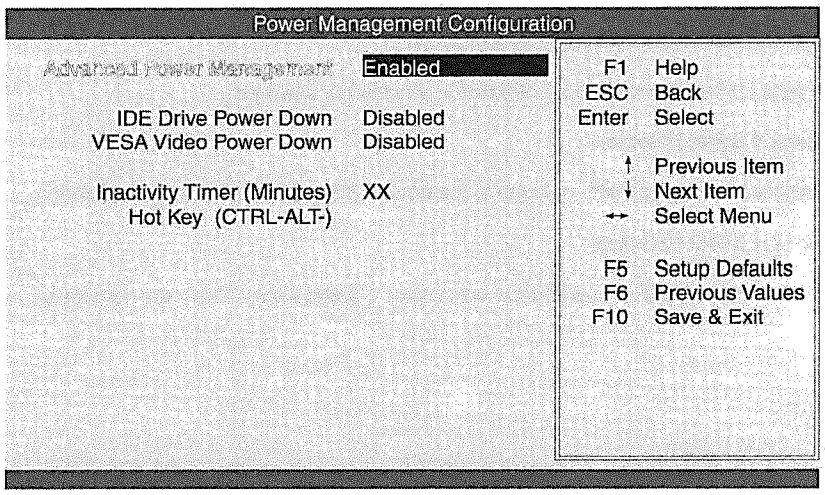


Figure 3-8. Advanced Power Management Screen

Advanced Power Management

Enables or disables the Advanced Power Management (APM) support in your system's BIOS. Power Management will only work with APM-capable operating systems to manage power consumption in your system. If Advanced Power Management is set to Disabled, none of the fields in the Advanced Power Management subscreen will be visible.

IDE Drive Power Down

Sets any IDE drives to spin down when the system goes into power managed mode.

VESA Video Power Down

The options are Disabled, Standby, Suspend or Sleep.

Inactivity Timer

Sets how long the system must be inactive before it enters power managed mode. Enter the number of minutes. The range is 0 to 255 minutes.

Hot Key

Sets the hot key that, when pressed while holding down the <Ctrl> and <Alt> keys, causes the system to enter power managed mode. All alphabetic keys are valid.

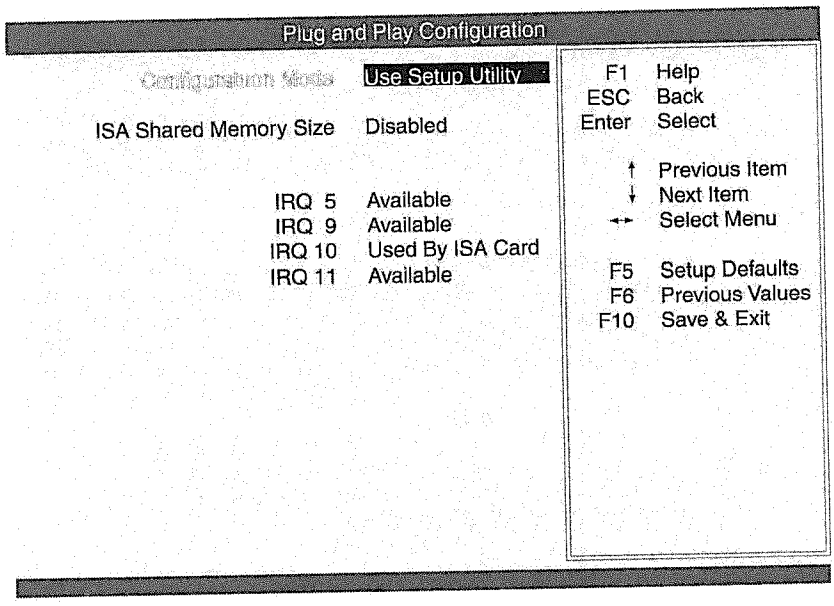


Figure 3-9. Plug and Play Configuration Screen

Plug and Play Configuration

Configuration Mode

Sets how the BIOS gets information about ISA cards that do not have Plug and Play capabilities. The options are Use Setup Utility and Use ICU (ISA Configuration Utility). If Use ICU is selected, the BIOS will depend on run-time software to ensure that there are no conflicts between ISA boards with Plug and Play capabilities and those without. Only Boot With PnP OS will be visible.

Boot with PnP OS

Enables the PC to boot with an operating system capable of managing Plug and Play add-in cards. The options are None, Other, and Windows95.

ISA Shared Memory Size

Enables you to "unshadow" a block of the upper memory area. The options are Disabled, 16 KB, 32 KB, 48 KB, 64 KB, 80 KB, and 96 KB. If this is set to Disabled, the ISA Shared Memory Base Address (described below) will not be visible. Shadowing is a technique that copies a block of memory from an add-in card's ROM to the same address in system memory. This provides faster access and achieves higher performance. By default, all upper memory is shadowed.

ISA Shared Memory Base Address

Sets the base address for the ISA Shared Memory. The options are C8000h, CC000h, D0000h, D4000h, D8000h, and DC000h. This setting could affect the ISA Shared Memory Size item. The value entered in the ISA Shared Memory Size item cannot extend to the E0000h address. For example, if a size of 64K was selected, options D4000h, D8000h, and DC000h will not be available.

IRQ 3, 4, 5, 7, 9, 10, 11, 12, 14, 15

Sets the status of the IRQ. The options are Available and Used By ISA Card. The PCI auto-configuration code looks here to see if these interrupts are available for use by a PCI add-in board. If an interrupt is available, the PCI auto-configuration code can assign the interrupt to be used by the system. If your system contains an ISA agent that uses one of these interrupts, select Used By ISA Card for that interrupt.

NOTE

Some of the IRQ's may not be available in this option, depending on the setting chosen for the COM1, COM2 and parallel ports in the Peripheral Configuration Subscreen.

Setting the CMOS Security Screen

The Security Screen (Figure 3-10) controls access to the computer. The security screen allows for settings of two passwords. The Administrative Password allows access to the system and Setup. The User Password will allow access to the system, but not to all Setup features.

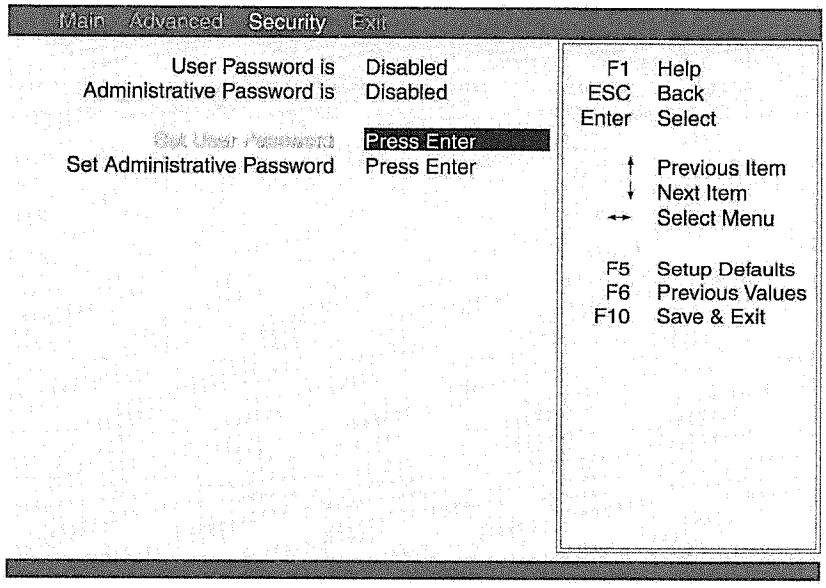


Figure 3-10. Security Configuration Screen

User Password is

Reports if there is a User password set. There are no options.

Administrative Password is

Reports if there is an Administrative password set. There are no options.

Set User Password

Sets the User password. The password can be up to seven alphanumeric characters.

Set Administrative Password

Sets the Administrative password. The password can be up to seven alphanumeric characters.

Unattended Start

Controls when the security password is requested. The options are Enabled and Disabled. The User password must be enabled before you can enable this option. If Enabled is selected, the system boots, but the keyboard will be locked until the User password is entered.

Security Hot Key (CTRL-ALT-)

Sets a hot key that, when pressed, locks the keyboard until the User password is entered. The Keyboard LEDs flash to indicate that the keyboard is locked. When you enter the User password, you do not have to press the <Enter> key.

Exiting/Saving the CMOS Selections

After you have completed configuring the BIOS, select the Exit Screen (Figure 3-11), and choose one of the following options.

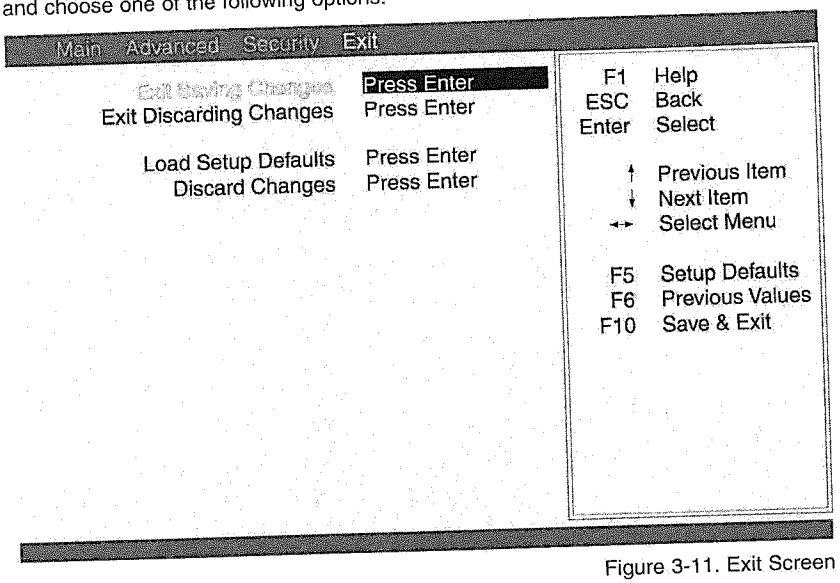


Figure 3-11. Exit Screen

Exit Saving Changes

Saves the changes to CMOS RAM and exits the Setup program. You can also press the <F10> key anywhere in the Setup program to do this.

Exit Discarding Changes

Exits the Setup program without saving any changes. This means that any changes made while in the Setup program are discarded and NOT SAVED. Pressing the <Esc> key in any of the four main screens will do this.

Load Setup Defaults

Resets all of the setup options to their defaults. You can also press the <F5> key anywhere in the Setup program to do this. This selection loads the default Setup values from the ROM table.

Discard Changes

Discards any changes you made during the current Setup session without exiting the program. You can also press the <F6> key anywhere in the Setup program to do this. This selection loads the CMOS RAM values that were present when the system was turned on.

Chapter 4

Common Problems

Introduction 4-2
Problems During Boot 4-2
System Problems 4-6
Hard Disk Problems 4-9

Introduction

Occasionally while setting up and configuring a computer system, an error may occur or an important element may be forgotten. This section provides information regarding the most frequently encountered problems, as well as many quick and simple solutions. If you continue to experience problems and this section fails to provide solutions, please feel free to contact Micron technical support (see Appendix A: Contacting Technical Support).

Problems During Boot

Problem

When the power switch is turned on, the system does not power up (i.e., the exhaust fan does not run, the power indicator light is not illuminated, the hard disk does not begin to spin, etc.), and no audible "beep" is heard.

Possible Cause

- The power cable is unplugged or defective.
- Voltage switch is improperly set.
- No power at outlet.
- Bad power supply.

Solutions

- Check to ensure the power cable is plugged in correctly and firmly. Try a second power cable, if available, or test the cable for continuity. Replace original cable if it is found to be defective.
- Check the red voltage switch (located at the rear of the unit near the fan) and ensure that it is set for the proper voltage (115V in the U.S. and Canada).
- Check the outlet with another appliance (e.g., a lamp).
- If a surge suppresser or Uninterruptable Power Supply (UPS) is being used, temporarily bypass the surge suppresser and plug the unit directly into the wall outlet. The surge suppresser or UPS may be faulty.

Problem

When the power switch is turned on, the system has power (i.e., the exhaust fan runs, the power indicator light is illuminated, the hard disk begins to spin, etc.), but the system appears dead. Generally the keyboard LEDs will stay on.

Possible Cause

- The monitor may not be turned on or plugged in.
- A peripheral card may not be seated correctly on the system board.
- A peripheral card may be defective.
- A floppy drive may be defective.

Solutions

- Check to make sure the monitor power cable is plugged into the wall outlet and the back of the monitor. Also verify the monitor video cable is plugged into the video card in the back of the computer. Check the monitor to ensure that the power is on. If you suspect a problem with the monitor, please refer to the manual that was provided with it.

- Carefully open the system unit. Press down firmly on all peripherals in the expansion slots.

- With the system power shut off, remove one peripheral card, power up the system, and wait a few moments to see if the keyboard lights turn off. If they don't turn off, repeat the above steps with the next peripheral card until all have been removed. After this has been completed, contact Micron technical support for further assistance.

- With the system power shut off, completely disconnect one of the floppy drives and power up the system. If the keyboard lights do not turn off after a few moments, repeat the above procedure until all drives are disconnected. After this has been completed, contact Micron technical support for further assistance.

- Contact Micron technical support if none of the above procedures is effective.

Problem

System powers on, the display works, but the system does not complete the boot process or you see one of the following error messages:

"Hard disk Controller Failure."
"Fixed Disk Configuration Error."
"Operating System Not Found."

Possible Cause

- Hard drive is incorrectly set up in CMOS.
- Hard drive cable may not be properly connected.
- CMOS may have lost settings.
- SCSI controller card may have lost settings.
- Files on hard drive may be corrupted.
- Hard drive may be defective.

Solution

- If you have a SCSI hard drive, make sure that the CMOS says Not Installed for all hard disk drives. For help in getting to your CMOS settings, see chapter 3- The BIOS Setup Program.

- For an IDE drive - check the parameters of the hard drive. Have the system re-Autodetect the settings of the drive. To do this, highlight the first hard disk from the MAIN screen of your CMOS Setup (labeled Primary IDE Master) and press the <Enter> key. On the next screen press <Enter> again and select AUTO CONFIGURED. Press <Enter> and the system should reassign the proper values to the hard drive. You will also want to make sure that the primary IDE controller is enabled. To verify, move to the ADVANCED section of CMOS and press <Enter> on the line that says PERIPHERAL CONFIGURATION. Press <Enter> again and select AUTO. Exit and save your changes.

- With the power OFF, carefully open the system unit. Reset the gray ribbon cable that is connected to the hard drive and to the motherboard or SCSI Controller Card. To assist you, the colored stripe going down the side of the gray controller cable signifies pin one and should be connected to pin one of the controller and drive. Also, check to ensure that the power connector in the Hard Drive is secure. Power the system back up and perform an AUTODETECT of the hard drive again.

Problem

The system displays the error message "Non-system Disk or Disk Error" or "Operating System Not found."

Possible Cause

- The System files are missing from the Boot Sector of the hard drive.
- The diskette in Drive A: is not bootable.
- CMOS is incorrectly configured.

Solutions

- Your system is designed to first check the floppy drive for a bootable diskette. If there is a diskette in the floppy drive when you reset your system the above error message will appear unless the diskette is a bootable system diskette. Remove the diskette from drive A: and reboot your computer. If the computer still does not boot up, you may have to restore system files to the hard drive.

- To restore system files:
  Make sure your hard drive information is correct in CMOS (see above for help in correctly setting up your CMOS).
  Insert the DOS or Windows 95 Boot Diskette provided with your Micron system and either reset or power on your system with the disk in the floppy drive.

- If you boot to a setup utility, exit out so that your computer is at the A: prompt. From the A:\ prompt type SYS C:\ and press the <Enter> key. Remove the Boot Diskette and Reboot your system by pressing the Reset button on the front of your PC.

System Problems

Problem

A large number of damaged sectors are encountered when attempting to format diskettes.

Possible Cause

- Typically, Micron computers are provided with a 1.44MB 3.5" floppy drive. An attempt may have been made to format a low-density disk in one of the Micron high-density floppy drives.

Solution

- Please refer to the DOS manual for more information about how to format low-density diskettes in high-density floppy drives.

Problem

The IDE CD-ROM is not being recognized by the system.

Possible Cause

- CMOS is configured incorrectly.
- The connection to the CD-ROM is improper or loose.

Solution

- Check in the system's CMOS Setup to ensure that the PERIPHERAL CONFIGURATION mode is set to Auto. For help in getting to your CMOS settings, see Chapter 3 - The BIOS Setup Program.

- With the power OFF, carefully open the system unit. Reconnect the CD-ROM ribbon cable on the motherboard and at the back of the CD-ROM. To assist you, the colored stripe going down the side of the gray controller cable signifies pin one and should be connected to pin one of the controller and drives. Also, check to ensure that the power connector in the CD-ROM is secure.

Problem

The system displays the error message COM Port 2F8 conflict during boot, or the system beeps, and displays the message "Press F1 to Continue, F2 for Setup."

Possible Cause

- System CMOS has been reset to defaults, and you have a modem installed on COM 2.

Solution

- Check that the modem settings are set correctly and not conflicting with any other devices.

  On Windows 95™ systems Serial/Com Port B should be set to COM 4. For DOS and Windows for Workgroups™, Serial/Com Port B should be set to Disabled or None. For help on CMOS settings, refer to Chapter 3- The BIOS Setup Program.

- If you are using Windows 95™ and the CMOS is set correctly, remove the checkmark from Use Original Configuration (Current) under the properties section for your Communications Port (Com 4) in device manager. Then, remove your modem from device manager and have the Windows 95™ operating system re-detect your modem.

Problem

The monitor is flickering noticeably or the video is distorted.

Possible Causes

- Interference
- Invalid or corrupt video drivers.

Solution

- Check for high power-draining devices, or high noise devices in the area. Examples are heaters, air-conditioners, other monitors, other computers, fluorescent lights, printers, microwaves, or televisions. Any of these devices could cause a flickering in your display because of the interference they can put into the power lines or the environment. Also, temporarily unplug any other devices that are in the same outlet or surge protector that the monitor and computer are using. This could be amplified speakers, or one of the devices listed above.

- Temporarily switch your video display to use default standard VGA drivers. Your display will not have the clarity or color definition that it usually does, however, check to see if everything appears normal. If it does, try reinstalling the video drivers specific to your video card that shipped with your system, or check the Micron Electronics Internet Site for updated video drivers.

Problem

After installing a new peripheral card, an unrelated part of the system suddenly stops working.

Possible Cause

- The new card may be attempting to use some of the same system resources, such as address space, I/O ports, interrupt lines, etc., and may be conflicting with the failing part of the system.
- When installing the new card, a different peripheral card or a cable may have been knocked loose.

Solution

- Remove the new card and retry system.
  If it works, you will need to change the I/O ports, interrupt lines or address regions the new card uses. Most cards have jumpers or switches that can be changed to reconfigure the settings. Refer to the documentation that came with the card to determine how to change the settings. If you have any questions, contact the card's manufacturer.

- Double check all the gray ribbon cables and power connectors to ensure that they are plugged in correctly and securely.

Hard Disk Problems

Problem

System has to be booted from a floppy disk. Hard drive is either unrecognized or unreadable.

Possible Cause

- The connections between the drive and the controller may be defective or loose.
- The hard drive's root directory or file allocation table may be corrupted. The controller or hard drive may also be defective.

Solution

- Check that the hard drive and controller are connected properly.
- If hard drive recovery software is available, use it to repair the damage. The only other solution is to attempt a high-level (DOS) format on the drive. ***Do not attempt to low-level format the drive!*** If the drive cannot be formatted, either the drive or the controller may be defective. Contact Micron technical support.

Problem

System has to be booted from a floppy disk. Hard disk is completely functional, but cannot be used for boot-up.

Possible Cause

- The hard drive's boot sector may have become corrupted.

Solution

- If hard drive recovery software is available, attempt to use it to repair the damaged boot sector. The only other solution is to attempt a high-level (DOS) format on the drive and transfer the DOS system to the boot sector. ***Do not attempt to low-level format the drive!*** Backup your data before formatting your drive.

Problem

Read/write, sector, data, or seek errors occur when attempting to access files on the hard drive.

Possible Cause

- The format may be fading.
- The hard drive may be developing media errors.
- The file allocation table may be corrupted.

Solution

- Using a file-by-file backup method, backup as much data as you can, then reformat the drive. If the format is successful, use a disk diagnostic software application to test the media of the drive (make sure the application locks out any errors it finds to make them inaccessible from DOS). Finally, restore your files from the backup tape or diskettes.

Appendix A: Contacting Technical Support

Introduction

If you are experiencing problems with your Micron system and Chapter 4, "Common Problems" does not provide the information needed to correct your problem, feel free to contact Micron Technical Support at 1-800-877-8856. Additional areas of support may be found by contacting the Micron Technical Support BBS at 1-800-270-1207, Technical Support Internet Mail: techsupport.meic@micron.com, Compuserve: GO MICRON or GO PCVEND-21, and Micron Electronics Home Page: http://www.mei.micron.com. But before you do, take a few minutes to read this section for information about the equipment and information you might need to help the technical support representative diagnose the problem.

Before You Call

Before contacting Micron Technical Support, please follow the next few steps. These steps are designed to prepare you for any of the questions the technical support representative might ask or any procedures he or she may need you to do. This will help solve your problem in the fastest possible time.

1. Make sure your system is plugged into a grounded power outlet.
2. Locate the failing system as near a telephone as possible, preferably close enough so that you can simultaneously talk with the technical support representative while you work on the system.
3. Have a medium to small sized Phillips-head screwdriver available. It's possible you may need to open your system to correct the problem.
4. Write down all error information you can remember, including error messages, software used (with version numbers), and so on.

We hope Micron Technical Support will be able to solve your problem over the telephone. However, in some extreme cases your system may need to be returned to Micron Electronics, Inc. for repair. The next section describes what to do if this is the case.

Returning Equipment to Micron Electronics

If it is determined that your system needs to be returned to Micron for repair or replacement, please observe the rules listed on the next page. Failure to follow any of these rules may result in long delays in repair or the simple return of the system without repair.

1. Contact Micron Technical Support at 1-800-877-8856 to obtain an RMA (Return Material Authorization) number and to obtain shipping instructions before returning any portion of your system.

2. Make sure all printed-circuit boards or static-sensitive peripherals are completely enclosed in anti-static bags or foam.

3. Print the RMA number in large, legible numbers in black ink on the outside of the shipping boxes.

4. Enclose a note describing the problem as well as the name of the technical support representative who authorized the return.

Micron also highly recommends that you follow these additional steps for your protection:

1. Make a complete backup of your hard drive(s) before returning the system.

2. Use the original packing material that came with your system.

Please ship to the following address:

Micron Electronics, Inc.
Attn: RMA #xxxx ←——— **Please Note:**
1002 Front Street **It is essential to obtain this RMA number from Technical Support or Customer Service BEFORE returning any Micron material.**
Nampa, ID 83651

Beep Codes and Error Messages

POST (Power On Self Test) has two kinds of messages: Beep Codes and Error Messages. The following tables list these messages and explanations.

BIOS Beep Codes

Beeps	Error Message	Description
1	Refresh Failure	The memory refresh circuitry on the system board is faulty.
2	Parity Error	A parity error has been detected in a SIMM.
3	Base 64KB Memory Failure	Memory failure in the first 64KB of memory.
4	Timer Not Operational	Memory failure in the first 64KB of memory, or Timer 1 on the system board has failed.
5	Processor Error	The CPU generated an error.
6	8042 - Gate A20 Failure	The keyboard controller (8042) may be bad. The BIOS canot switch to protected mode.
7	Processor Exception Interrupt Error	The CPU generated an exception interrupt.
8	Display Memory Read/Write Error	The system video adapter is either missing or its memory is faulty. This is not a fatal error.
9	ROM Checksum Error	ROM checksum value does not match the value encoded in BIOS.
10	CMOS Shutdown Register Read/Write Error	The shutdown register for CMOS RAM failed.

Table B-1. Beep Codes

BIOS Error Messages

Error Message	Explanation
8042 Gate - A20 Error	Gate A20 on the keyboard controller is not working. Replace the motherboard.
Address Line Short	Error in the address decoding circuitry on the motherboard.
Cache Memory Bad, Do Not Enable Cache!	Cache memory is defective. Replace the motherboard.
CH-2 Timer Error	Most AT systems include two timers. Timer 2 is bad. Replace the motherboard.
CMOS Battery State Low	CMOS RAM is powered by the battery. The battery charge is low, and must be replaced.
CMOS Checksum Failure	After CMOS RAM values are saved, a checksum value is generated for error checking. The previous value is different for the current value. Run the CMOS BIOS setup program.
CMOS System Options Not Set	The values stored in CMOS RAM are either corrupt or nonexistent. Run the CMOS BIOS setup program.
CMOS Display Type Mismatch	The video type in CMOS RAM doesn't match the type detected by the BIOS. Run the CMOS BIOS setup.
CMOS Time and Date Not Set	Run Main Screen setup, for the time and date.
Diskette Boot Failure	The boot disk in floppy drive A: is corrupt. It cannot be used to boot the system. Use another boot disk and follow the screen instructions.
DMA Error	Error in the DMA controller.
DMA #1 Error	Error in the first DMA channel.
DMA #2 Error	Error in the second DMA channel.
FDD Controller Failure	The BIOS cannot communicate with the floppy disk drive controller. Check all cable connections.
HDD Controller Failure	The BIOS cannot communicate with the hard disk drive controller. Check all cable connections.
INTR #1 Error	Interrupt channel 1 failed POST.
INTR #2 Error	Interrupt channel 2 failed POST.
Invalid Boot Diskette	The BIOS can read the disk in floppy drive A:, but cannot boot the system. Use a system boot diskette.

Table B-2 BIOS Error Messages

Appendix B: Beep Codes and Error Messages

BIOS Error Messages

Error Message	Explanation
Keyboard is Locked... Unlock It	The keyboard lock on the system is engaged. Set the keyboard option in the Main screen to Not Installed to skip the keyboard POST routines.
Keyboard Error	There is a timing problem with the keyboard. Set the keyboard option in the Main screen to Not Installed to skip the keyboard POST routines.
KB/Interface Error	There is an error in the keyboard connector.
Off Board Parity Error [DS4]	Parity error in memory installed in an expansion slot. The format is: OFF BOARD PARITY ERROR ADDR (HEX) = (XXXX) XXXX is the hex address where the error occurred.
Parity Error ???? [DS5]	Parity error in system memory at an unknown address.

Table B-2 BIOS Error Messages (continued)

Glossary

Application: A software program that operates under an operating system to perform a specific task.

BIOS: Basic Input/Output System. Programs that are permanently stored in the system board's ROM chips providing functions such as the power-on self test. Also see ROM.

Boot: To start the computer system and load the operating system.

Bus: The set of address or data lines used to transfer information between different components within a computer (such as memory, the microprocessor, and the expansion slots).

Cache: Provides fast, local storage for frequently accessed instructions and data to provide the processor with the fastest stream of information possible, while keeping main memory current.

Clock: A circuit that sends a consistent, periodic signal that is used to synchronize the computer and to step information through the system.

Closed: A circuit that is complete. Usually accomplished by placing a jumper over two pins on the system board or a peripheral card. Also see "Open" and "Jumper."

CMOS: Complementary Metal Oxide Semiconductor. A logic circuit family that uses very little power. Sometimes used to store information by applying constant, uninterrupted power through the use of an external battery.

Coprocessor: A microprocessor device that performs specialized computations (such as floating-point arithmetic) much more efficiently than the microprocessor alone.

CPU: Central Processing Unit. The integrated circuit chip that performs the actual computing functions of the computer. Other chips perform support functions like storing data and controlling peripherals. Also see microprocessor.

Disk: See "Floppy Disk" and "Hard Disk."

DMA: Direct Memory Access. A method for transferring data directly to and from system memory, bypassing the microprocessor.

DOS: See "Operating System."

DRAM: Dynamic Random Access Memory. Memory that requires a periodic refresh cycle to keep the stored information from being lost. Loss of power causes loss of data in this memory.

EISA: Extended Industry Standard Architecture.

Expansion Slot: A connector on the motherboard for holding a peripheral card.

Floppy Disk: A 3.5 inch or 5.25 inch removable storage medium used for storing programs and files externally from the computer system.

Format: A process that prepares a disk to hold data. For hard disks, there are two formatting process: low-level and high-level.

Hard Disk: An internal or external, high-capacity, high-storage medium.

Hertz (Hz): A unit of frequency equal to one cycle per second.

I/O Port: A connector that allows external and some internal peripherals to communicate with the computer system (e.g., serial ports and parallel ports).

I/O: Input/Output. A generic term that refers to the devices and processes involved in the computer's reading and writing data.

IDE: Integrated Drive Electronics. Currently the most popular type of hard drive used in PCs. A standard IDE adapter can handle a maximum of two hard drives.

Integrated Circuit: An electronic device that combines thousands of transistors on a small chip of silicon or other semiconductor. Such devices are the building blocks of computers.

Interface: The connection between the computer and its human operator, or between the computer and peripheral device.

ISA: Industry Standard Architecture. The standard bus interface that was implemented in the IBM AT.

Jumper: On a printed circuit board, a patch cable or wire used to establish a circuit.

LBA: Logical Block Addressing. Allows the system to address more than 528MB on the hard drive.

Megahertz (MHz): A frequency of 1 million cycles per second.

Memory: Devices used to hold information and programs while they are being accessed by the microprocessor. See also RAM and ROM.

Microprocessor: An integrated circuit that contains the circuits the computer needs to calculate and to communicate with the other parts of the system. See also CPU.

Modem: A device designed to allow computers to communicate over standard phone lines.

Motherboard: See "System Board."

Non-Volatile Memory: Memory that is maintained even when power is not on.

On-Board Floppy: A floppy disk drive controller that is incorporated into the system board.

Open: A circuit that is not complete. Usually accomplished by removing a jumper from two pins on the system board or a peripheral card. Also see "Closed" and "Jumper."

Operating System: The software the provides a link between application programs and the computer hardware (e.g., disks, memory).

PCI: Peripheral Component Interface. A form of local bus architecture that provides high-speed interconnection without directly interfacing with the processor.

Page Mode: Special function in DRAM that saves up to about 30% in cycle time by not re-loading RAS bits.

Page: Sections of memory consisting of sets of consecutive bytes. Pages begin on 4-KB boundaries.

Peripheral Card: A printed circuit board that gives the computer added capability, such as more memory or control of a new device. A card plugs into one of the expansion slots located on the system board.

Peripheral: Any device that is connected to the computer system (e.g., printers, keyboard, plotters, etc.).

Pin: Any of the leads on a device, such as an integrated circuit, that plug into a socket and connect to a system.

POST (Power On Self Test): Check-out procedures that the BIOS runs automatically when the system is turned on. These procedures verify that all computer hardware is functioning properly. If the test detects problems, the computer displays error codes before (or instead of) starting the operating system. The error codes can help a service person determine what is wrong with the computer.

Program: A set of instructions that a computer interprets to perform some task. Also see "Application" and "Operating System."

RAM: Random-Access Memory. The type of computer memory that can be used to store information while a program is running. RAM consists of a number of small integrated circuits that are plugged into the system board or an external memory card.

ROM: Read-Only Memory. The type of computer memory that is used to permanently store the information vital to computer operation, including some parts of the operating system. ROM is permanent and the contents will not be lost when the computer is turned off.

Setup Program: Used to inform the computer about installed peripheral, memory, configuration information, date and time, etc.

Shadow RAM: A method of copying BIOS routines from slower ROM chips to much faster RAM, increasing system performance.

SIMM: Single In-line Memory Module. A small circuit board containing memory components that plugs into special sockets located on the system board for upgrading the system memory. These modules generally need to be inserted in groups of two or four.

Software: A general term that describes a program or set of programs.

SRAM: Static Random Access Memory. Does not require periodic refreshing that dynamic memory requires.

System Board: The large printed-circuit board in a computer on which most electronic devices are mounted; the primary board in a computer. All other interfaces receive control signals or information from the motherboard. Also commonly referred to as the "mainboard" or "motherboard."

System Unit: The description for the computer case and all internal components (e.g., the system board, expansion cards, disk drives, power supply, etc.).

System: The assembly of basic components (e.g., power supply, motherboard, memory, video monitor, etc.) united by some form of communication to form an organized whole.

VESA: Video Electronics Standard Association. A group of standards developed for the purpose of defining video resolutions greater than VGA.

VGA: Video Graphics Array. The most widely accepted graphics hardware standard and the lowest common denominator for all graphics cards and monitors manufactured to date.

Wait State: A delay in the computer's information processing cycle caused by a difference in speed between a faster processor and slower memory. A 0 wait state means the processor does not have to "wait" for memory, and can access data as fast as needed.

Write Precompensation: In a hard disk, the varying of the timing of the read/write head current on the inner tracks of the disk to maintain a constant signal.

MICRON ELECTRONICS, INC.
MICRON POWER LIMITED WARRANTIES AND SUPPORT

FIVE-YEAR LIMITED WARRANTY

Micron Electronics, Inc. (Micron) warrants that the microprocessor and main memory included in the new product sold by Micron will be free from defects in materials and workmanship for five (5) years from date of shipment by Micron.

THREE-YEAR LIMITED WARRANTY

Micron warrants that the hardware other than the microprocessor and main memory (but not the software) included in the new product sold by Micron will be free from defects in materials and workmanship for three (3) years from the date of shipment by Micron.

NINETY-DAY REPLACEMENT PARTS LIMITED WARRANTY

Replacement parts shipped by Micron are warranted against defects in materials and workmanship for ninety (90) days from the date of shipment by Micron or until the expiration date of the original Five-Year Limited Warranty or Three-Year Limited Warranty, as the case may be, whichever is longer.

TERMS OF LIMITED WARRANTIES

The Five-Year Limited Warranty, Three-Year Limited Warranty and the Ninety-Day Replacement Parts Limited Warranty are granted to the initial customer end-user only and are nontransferable. Any claims under these warranties must be made before the end of the applicable warranty period. During such period Micron, at its option, will: repair or replace any part covered by the Five-Year Limited Warranty, Three-Year Limited Warranty or the Ninety-Day Replacement Parts Limited Warranty which is determined by Micron to be defective in materials or workmanship; or provide a credit or refund.

Micron reserves the right to substitute functionally equivalent new or serviceable used parts. Micron's responsibility is limited to repair, replacement, credit or refund, any of which may be selected by Micron at its sole discretion.

The Five-Year Limited Warranty, Three-Year Limited Warranty and Ninety-Day Replacement Parts Limited Warranty cover only defects arising under normal use and do not include malfunctions or failures resulting from: misuse, abuse, neglect, alteration, problems with electrical power, usage not in accordance with product instructions; acts of nature or improper installation; or repairs made by anyone other than Micron, Micron-qualified third-party service providers, or you with the assistance of Micron technical support.

ON-SITE SERVICE

If you have purchased on-site service, such service will be provided by Micron-qualified third-party service providers for one (1) year from the date of shipment by Micron, in accordance with the Terms of Limited Warranties. On-site service will only be provided for factory-installed products and is not available in some areas. On-site service will not be provided for external peripheral hardware such as the keyboard, monitor or mouse.

To arrange for on-site service you must call Micron at 800-438-3343 or 208-893-3434, and our representatives will, if Micron elects to provide on-site service, make arrangements with such third party to provide service to you.

RETURN PROCEDURES

You are responsible for returning products to Micron at your expense. Prior to returning product(s) to Micron for warranty service, you must obtain a Return Merchandise Authorization (RMA) number from Micron by calling 800-438-3343 or 208-893-3434. To obtain an RMA number, you must provide Micron with your valid charge card number (VISA, MasterCard or other issuer acceptable to Micron) or a Micron-authorized open Purchase Order to cover the replacement cost of the part at the time you obtain the RMA number. Micron will process this charge only if you fail to return the defective part at your expense within ten (10) business days from the date you obtain the RMA number. Replacement parts will be shipped to you at Micron's expense, subject to availability, via second day delivery service after you obtain an RMA number. Overnight delivery service may be available at an additional charge to you. Micron shall not be responsible for failure of the delivery service to make on-time delivery. If you cannot provide your valid charge card number or Micron-authorized open Purchase Order, Micron will ship, if practical, replacement products C.O.D. (by cashier's check) and reimburse you upon Micron's receipt of the defective part.

You must ship the product(s) to Micron in the original packaging, prepaid and insured by you, with the RMA number clearly identified on the packaging. Please retain your shipping information, including tracking numbers, until your amount has been credited by Micron. This will serve as your proof of return. Any product(s) replaced by Micron shall become the property of Micron. If Micron determines that failure of the product(s) was not a result of a defect in materials or workmanship, Micron reserves the right to charge you for parts and labor at Micron's then current labor rate. Micron will advise you prior to assessing these charges.

TECHNICAL SUPPORT POLICY

Micron provides free telephone technical support service with respect to installation and configuration of all hardware products sold by Micron. Micron also provides free telephone technical support service with respect to the configuration of factory installed software for thirty (30) days from the date of shipment. The Micron telephone technical support service number is 800-438-3343 or 208-893-3434.

Appendix D: Micron Power℠ Warranty

THIRTY-DAY MONEY-BACK POLICY

This product sold by Micron comes with Micron's thirty-day money-back policy. Opened software is not covered under this policy and may be subject to a restocking fee. If for any reason you are unsatisfied with the Micron product(s) you have purchased, or if you do not accept the Terms of Limited Warranties and other Terms set forth herein, you may return the product(s) to Micron for a full refund of the purchase price paid (less any restocking charge for opened software). This policy does not include payment by Micron for original or return shipping and handling charges. Prior to returning product(s) under this policy you must obtain an RMA number from Micron by calling 800-438-3343 or 208-893-3434. The product(s) must be shipped to Micron within thirty (30) days from the date of shipment by Micron to obtain such refund. Such product(s) must be shipped in the original packaging, prepaid and insured by you, with the RMA number clearly identified on the packaging. Please retain your shipping information, including tracking numbers, until your amount has been credited by Micron. This will serve as your proof of return. Upon receipt by Micron and verification that the product(s) have not been damaged or altered, Micron will provide you with a full refund (less any restocking charge for opened software).

LIMITATIONS

PRODUCTS SOLD BY MICRON ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE PRESIDENT OF MICRON.

MICRON MAKES NO WARRANTY WHATSOEVER WITH RESPECT TO SOFTWARE INCLUDED IN ANY PRODUCTS SOLD BY MICRON, AND ALL SOFTWARE IS SOLD "AS IS" AND "WITH ALL FAULTS."

EXCEPT AS SET FORTH HEREIN, MICRON MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, AND MICRON DISCLAIMS AND NEGATES ALL OTHER WARRANTIES, INCLUDING WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND CONFORMITY TO MODELS OR SAMPLES. SOME STATES DO NOT ALLOW LIMITATIONS ON IMPLIED WARRANTIES, SO THESE LIMITATIONS MAY NOT APPLY TO YOU.

THE WARRANTIES SET FORTH HEREIN GIVE YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

IN NO EVENT SHALL MICRON BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE EXCLUSION OR LIMITATION MAY NOT APPLY TO YOU.

NO VARIATION OR EXCEPTIONS IN THE TERMS STATED HEREIN CAN BE MADE WITHOUT WRITTEN AUTHORIZATION BY THE PRESIDENT OF MICRON.

THESE LIMITED WARRANTIES APPLY ONLY IN THE CONTINENTAL UNITED STATES OF AMERICA, ALASKA, HAWAII, PUERTO RICO, AND CANADA.

A "FULL REFUND" AS USED ABOVE SHALL INCLUDE THE PURCHASE PRICE PAID BY THE CUSTOMER, BUT SHALL NOT INCLUDE SHIPPING COSTS AND INSURANCE PAID BY THE CUSTOMER.

GOVERNING LAW AND JURISDICTION

THESE LIMITED WARRANTIES ARE INCORPORATED INTO AND ARE ESSENTIAL AND MATERIAL PROVISIONS OF THE TERMS AND CONDITIONS OF SALE OF NEW MICRON PRODUCTS TO YOU (SALE TERMS). ALL DISPUTES ARISING OUT OF OR RELATED TO THE LIMITED WARRANTIES SET FORTH HEREIN (CUSTOMER DISPUTES) SHALL BE GOVERNED BY THE LAWS OF THE STATE OF IDAHO. THE CUSTOMER HEREBY CONSENTS TO THE JURISDICTION AND VENUE OF THE STATE COURTS OF IDAHO TO RESOLVE ANY AND ALL CUSTOMER DISPUTES WITH MICRON, AND THE CUSTOMER WAIVES ALL DEFENSES TO SUCH JURISDICTION AND VENUE INCLUDING, BUT NOT LIMITED TO, ANY DEFENSE BASED ON INCONVENIENT FORUM.

MICRON ELECTRONICS, INC.
MICRON POWER LIMITED WARRANTIES AND SUPPORT FOR INTERNATIONAL PRODUCT SALES

FIVE-YEAR LIMITED WARRANTY

Micron Electronics, Inc. (Micron) warrants that the microprocessor and main memory included in the new product sold by Micron will be free from defects in materials and workmanship for five (5) years from date of shipment by Micron.

THREE-YEAR LIMITED WARRANTY

Micron also warrants that the hardware other than the microprocessor and main memory (but not the software) included in the new product sold by Micron will be free from defects in materials and workmanship for three (3) years from the date of shipment by Micron.

NINETY-DAY REPLACEMENT PARTS LIMITED WARRANTY

Replacement parts shipped by Micron are warranted against defects in materials and workmanship for ninety (90) days from the date of shipment by Micron or until the expiration date of the original Five-Year Limited Warranty or Three-Year Limited Warranty as the case may be, whichever is longer.

TERMS OF LIMITED WARRANTIES

The Five-Year Limited Warranty, Three-Year Limited Warranty and the Ninety-Day Replacement Parts Warranty are granted to the initial customer end-user only and are nontransferable. Any claims under these Warranties must be made before the end of the applicable warranty period. During such period Micron, at its option, will: repair or replace any part covered by the Three-Year Limited Warranty, Five-Year Limited Warranty or the Ninety-Day Replacement Parts Limited Warranty which is determined by Micron to be defective in materials or workmanship; or provide a credit or refund. Micron reserves the right to substitute functionally equivalent new or serviceable used parts. Micron's responsibility is limited to repair, replacement, credit or refund, any of which may be selected by Micron at its sole discretion.

The Five-Year Limited Warranty, Three-Year Limited Warranty and Ninety-Day Replacement Parts Limited Warranty cover only defects arising under normal use and do not include malfunctions or failures resulting from: misuse, abuse, neglect, alteration, problems with electrical power, usage not in accordance with product instructions; acts of nature or improper installation; or repairs made by anyone other than Micron, Micron-qualified third-party service providers, or you with the assistance of Micron technical support.

RETURN PROCEDURES

You are responsible for returning products to Micron at your expense. Prior to returning product(s) to Micron for warranty service, you must obtain a Return Merchandise Authorization (RMA) number from Micron by calling in the United States of America 208-893-3434. In order to obtain an RMA number, you must provide Micron with your valid charge card number (VISA, MasterCard or other issuer acceptable to Micron) or a Micron authorized open Purchase Order to cover the replacement cost of the part at the time you obtain the RMA number. Micron will process this charge only if you fail to return the defective part at your expense within ten (10) business days from the date you obtain the RMA number. Replacement parts will be shipped to you at Micron's expense, subject to availability via international delivery service within five (5) business days from the date you obtained the RMA number. Micron shall not be responsible for failure of the delivery service to make on-time delivery. All costs of insurance, import and export duties, and all other fees and charges imposed by government or quasi-governmental agencies or officials must be paid by you. If you cannot provide your valid charge card number or Micron-authorized open Purchase Order, Micron will not ship replacement products.

You must ship the product(s) to Micron in the original packaging, via DHL, Federal Express, UPS or another international courier acceptable to Micron (Qualified Courier), prepaid and insured by you, with the RMA number clearly identified on the packaging. Please retain your shipping information, including tracking numbers, until your amount has been credited by Micron. This will serve as your proof of return. Any product(s) replaced by Micron shall become the property of Micron. If Micron determines that failure of the product(s) was not a result of a defect in materials or workmanship, Micron reserves the right to charge you for parts and labor at Micron's then current labor rate. Micron will advise you prior to assessing these charges.

TECHNICAL SUPPORT POLICY

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THIRTY-DAY MONEY-BACK POLICY

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Such product(s) must be shipped to Micron via a Qualified Courier in the original packaging, prepaid and insured by you, with the RMA number clearly identified on the packaging. Please retain your shipping information, including tracking numbers, until your amount has been credited by Micron. This will serve as your proof of return. Upon receipt by Micron and verification that the product(s) have not been damaged or altered, Micron will provide you with a full refund (less any restocking charge for opened software).

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THE WARRANTIES SET FORTH HEREIN GIVE YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY HAVE OTHER RIGHTS WHICH VARY FROM JURISDICTION TO JURISDICTION.

IN NO EVENT SHALL MICRON BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE EXCLUSION OR LIMITATION MAY NOT APPLY TO YOU.

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A "FULL REFUND" AS USED ABOVE SHALL INCLUDE ONLY THE PURCHASE PRICE PAID BY THE CUSTOMER. ALL COSTS OF SHIPPING, INSURANCE, IMPORT AND EXPORT DUTIES, AND ALL OTHER FEES AND CHARGES IMPOSED BY GOVERNMENT OR QUASI-GOVERNMENTAL AGENCIES MUST BE PAID BY YOU.

GOVERNING LAW AND JURISDICTION

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